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The Chemist and Druggist is supplied regularly to every member of the following Societies :—

Pharmaceutical Society of Ireland.
Chemists' and Druggists' Society of Ireland.
Pharmaceutical Society of Cape Colony.
South African Pharmaceutical Society.
Pharmaceutical Society of Natal.
Pharmaceutical Society of the Transvaal.
Pharmaceutical Society of Rhodesia.
Pharmaceutical Society of New South Wales.
Central Pharmaceutical Association of New Zealand.
Otago Pharmaceutical Association, N.Z.
Pharmaceutical Society of Canterbury, N.Z.
Pharmaceutical Society of Queensland.
Pharmaceutical Society of South Australia.
Pharmaceutical Society of Tasmania.
Pharmaceutical Society of Western Australia.
Pharmaceutical Society of Trinidad

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OUR EDUCATIONAL NUMBER.

The Chemist and Druggist has for many years published annually an Educational Number, containing all about education and examinations in pharmacy, medicine, dentistry, veterinary surgery, and science. We propose to publish this year's number on Saturday, August 15, and shall be glad if local Secretaries and others who can supply useful information about local classes will send it to us during the coming week. The Publisher informs us that the number will be specially circulated to medical, science, and technical schools and hospitals throughout the country. The number will, therefore, be a particularly good one for advertisements of goods used by such institutions, as well as excellent for these institutions to advertise in, because all our subscribers at home and abroad will also get the number. Instructions for advertisements should be sent to the Publisher, *C. & D.*, 42 Cannon Street, London, E.C.

Summary.

The British Pharmaceutical Conference held a successful meeting in Bristol this week, and the proceedings are reported in the section beginning p. 209.

Mr. T. H. W. Idris, as the President, delivered an address on the pleasures and profits of pharmacy. It included also some notes on essential oils and observations on the sale and dispensing of poisons, having particular reference to the need of separating prescribing from dispensing (p. 212).

Twenty-five papers were communicated, and twenty of them were discussed more or less thoroughly (p. 223).

The Conference is in a better financial position than last year (p. 223).

It was decided to meet in Sheffield next year (p. 248).

Mr. Francis Ransom has resigned the Secretaryship and has been appointed Vice-President (p. 248).

Mr. Edmund White, of St. Thomas's Hospital, has been appointed junior Secretary (p. 249).

Another Fels-Naptha soap case *re* prices is proceeding (p. 250).

Hull Chemists have re-formed themselves into an association (p. 195).

We give a very full batch of South African news from all the Colonies on p. 197.

Diachylon should be on the Poisons Schedule, Mr. Justice Ridley says (p. 194).

The death of Mr. John Barclay was due to an accident while mountain-climbing (p. 194).

Baron de Bush, the head of W. J. Bush & Sons (Limited), fell from a Scotch express last week, and was killed (p. 203).

The Pharmacy Bill is opposed by the Society of Apothecaries, whose petition to the House of Commons is printed on p. 253.

Another case arising from the smuggling of saccharin by the representative of a Geneva firm has been heard in the High Court (p. 250).

Mr. Malcolm W. Allen, a director of Stafford Allen & Sons (Limited), was killed on Monday by falling on a mountain in Skye (p. 208).

Thos. Holloway has obtained an injunction restraining the Birmingham trader from using the name "Holloway" for pills (p. 250).

"Xrayser" makes observations upon the contents of our Summer Number, and his reflections are much to the point (p. 201).

Mr. George Burnett, of Fraserburgh, one of the oldest members of the Pharmaceutical Society in Scotland, died last week (p. 208).

The Saccharin Corporation have obtained an injunction against Mr. Monnet, director of Chemicals and Saccharin (Limited) (p. 250).

Two interesting warranty cases are reported in our Legal section. In one there was a conviction for giving a false warranty in respect to camphorated oil (p. 251).

Halifax Chemists have submitted several questions about medicine-stamp duty to the Board of Inland Revenue, and have received replies which convey no new information (p. 194).

Mr. A. Naysmith, of Arbroath, and his wife were injured in the railway accident at St. Enoch's Station, Glasgow, but not so severelyas to prevent him from assisting other injured passengers (p. 196).

Mr. Soddy, who with Sir William Ramsay has investigated the gaseous emanations of helium, has described how these emanations, or those from thorium nitrate, are used for inhalation in consumption (p. 201).

The Board of Inland Revenue have issued a circular letter, which states more fully than their letter of June 3 the conditions under which medicines with ailment-names may be sold by qualified chemists and druggists (p. 206).

A Bournemouth Chemist has successfully defended an action against him under the Sale of Food and Drugs Acts respecting ammoniated tincture of quinine, on the ground that the deficiency of ammonia and spirit was accounted for by evaporation (p. 251).

Business in drugs and chemicals has not been very brisk. Rio ipecac. has been in good demand at the decline registered last week. Menthol is lower both on spot and for forward delivery. Cream of tartar is easier, but "guaranteed lead free" is firm. Copper sulphate is easier, and quinine closes lower (p. 254).

English News.

Local newspapers containing marked items of news interesting to the trade are always welcomed by the Editor.

Brevities.

At the Hailsham Petty Sessions last week Edward George Bayley, chemist, Eastbourne, was fined 10*s.* and 10*s.* costs for driving a motor-car without a red light.

The annual meeting of the Western Counties Branch of the British Dental Association was held at University College, Bristol, last week, under the presidency of Dr. C. A. Hayman, Clifton.

At Lincoln Police Court, last week, Messrs. Battle, Son & Maltby, chemists, High Street, were fined 1*l.* and costs for keeping a greater quantity of benzoline and motor oil than was allowable under the Petroleum Act.

Mr. Lewis Wing, pharmaceutical chemist, and nearly fifty other "passive resisters" were ordered to pay their rates at Weston-super-Mare on July 24. The Magistrates overruled all objections put forward on behalf of Mr. Wing, and refused to state a case.

Mr. F. Cutmore, chemist and druggist, St. Marychurch, Torquay, has sent a donation of 1*l.* 11*s.* 3*d.* to the Rosehill Hospital, the money collected in a box on his weighing machine. This is the third collection of nearly similar amount that Mr. Cutmore has made.

At a meeting of the School Board for London on July 23, it was agreed, on the recommendation of the Works Committee, to give the necessary notice to Messrs. T. & W. Farmiloe for the termination of their contract for the supply of spirit of salt, which dated from December, 1894.

At the Cardiff Police Court, on Tuesday, Messrs. Worrell & Co., cycle agents, Albany Road, were summoned under section 7 of the Petroleum Act, and fined 3*l.* and costs, or one month's imprisonment, for keeping more than 5 lbs. of carbide of calcium on their premises without a licence.

Two women named Goodall, mother and daughter, were sentenced to seven years' and four years' penal servitude respectively, at the Staffordshire Assizes on July 28, for adminstering diachylon to another woman with the object of procuring abortion. Mr. Justice Ridley said the drug ought to be scheduled under the Poisons Act.

At Chester Police Court, on July 22, Patrick Fahy and Alfred Brett, ragmen, were charged with stealing twelve syphon-stoppers, valued at 24*s.*, from Mr. J. W. Normansell, chemist and druggist, 57 Bridge Street, Chester. The stoppers, it appears, were subsequently offered to a tinsmith, who gave 3*s.* for the lot. The pair were sentenced to one month's imprisonment each.

Ernest James Brazil (30), a dispenser to Drs. Sells & Russell, was at Guildford, on July 27, sentenced to four months' imprisonment with hard labour for embezzling the money of his employers. The amount involved was over 100*l.* The prisoner said he had had to send money to a woman with whom he had contracted a *liaison* some time ago, and he could not do that on 30*s.* a week.

At the weekly meeting of the London County Council, on Tuesday, it was agreed, on the recommendation of the Building Act Committee, to permit of the erection of a projecting clock in front of No. 9 The Broadway, Walham Green, as shown on the plan submitted on behalf of Messrs. Boots (Limited). Consent was refused to the erection of the script lettering, also shown on the plan, as the erection of such lettering is considered objectionable.

At the Sheffield Police Court on July 25, William Hume (22), of Newcastle, was charged with embezzling the sum of 1*l.* 17*s.* 6*d.*, belonging to Carter & Sons, wholesale chemists, 30 Pond Hill, Sheffield. The prisoner had been employed as a traveller at a weekly wage of 25*s.* His duties were to book orders and collect accounts, and to forward to Sheffield all cash collections every Thursday. The 1*l.* 17*s.* 6*d.* not accounted for was received from a customer, and it was stated that the total defalcations, as far as could be ascertained, amounted to 17*l.* 7*s.* 10*d.* Prisoner absconded and was arrested in London. He was committed to prison for one month.

The Death of Mr. John Barclay.

Information was received in Birmingham after we went to press last week to the effect that the death of Mr. John Barclay was caused by a fall during a climbing-expedition. Death was instantaneous.

The Newest University.

The charter of the new University of Liverpool, duly signed and sealed by the King, was received on July 22 by the Lord Mayor of Liverpool, as chairman of the University Committee. Since the first draft was issued several new clauses have been added, including one specifying that degrees representing proficiency in technical subjects shall not be conferred without proper security for testing the scientific or general knowledge underlying technical attainments. The joint board of the three universities—Liverpool, Manchester, and Yorkshire—will consist of fifteen members, five annually elected by each, and three co-opted persons of educational experience.

Questions from Halifax.

The Halifax Chemists' Association, through their Hon. Secretary (Mr. W. R. Black), have asked the Inland Revenue authorities the following questions having reference to the interpretation and working of the Medicine-stamp Act:

1. Does the rule with regard to the breaking open of stamped packages remain unaltered?—*i.e.*, will a trader not a chemist be able to sell, for example, a penny box of liver-pills, providing the package from which that box was taken was stamped in accordance with its retail value? and, also, would the same rule apply to an ounce of cough-mixture sold from a stamped 1-lb. bottle?

2. May a trader not a chemist sell a pure drug labelled "Headache-powder" without stamping? or, *e.g.*, a bottle of oil of cloves labelled "Toothache-tincture" without stamp?

3. Does the Board intend to take steps, especially among traders not being chemists, to ensure the new provisions being strictly carried out? Many small shopkeepers, having no trade-journals to inform them, may remain ignorant of the change in the law.

The following reply has been received:

Inland Revenue,
Somerset House,
London, W.C.,
15th July, 1903.

SIR,—In reply to your letter of the 8th inst., I am directed by the Board of Inland Revenue to inform you that no alteration has been made in the terms of the concession as to breaking open stamped packets. I am, however, to point out that concession never did apply to articles taken from a stamped packet which were again made up into a dutiable packet or enclosure, as appears to be contemplated in the case of the liver-pills to which you refer. Moreover, the concession applied only to licensed retailers who bought the stamped packet from a wholesale dealer or manufacturer. As regards your second question, I am to explain that the exemption from medicine stamp-duty in Act 35 Geo. III., cap. 150, in favour of all medicinal drugs uttered or vended entire, "without any mixture or composition with any other drug or ingredient whatsoever," applies to sales by persons holding a medicine-licence as well as to sales by qualified chemists and druggists. As regards your third inquiry, I am to state that the Board will not take proceedings up to December 31 next in cases where traders continue to sell articles unstamped, under their existing stocks of labels, which have only been regarded as involving liability to medicine stamp-duty since the recent decisions in the Law Courts. The Board trust that by that time the effect of the above decisions will be generally known.

I am, Sir, your obedient servant,
E. S. STOODLEY,
Secretary.

Mr. W. R. Black.

The Halifax Chemists' Association have, on the advice of Mr. W. S. Glyn-Jones, decided to defer the publication of the pamphlet in connection with the local advertising-scheme for a further period of six months.

Sheffield Pharmaceutical and Chemical Society.

An extraordinary meeting of this Society was held in the Montgomery Hall on July 21, to consider the action taken by the Inland Revenue authorities in reference to the stamping of medicines. The President (Mr. John Austen) was in the chair, and, after a long discussion, the meeting unanimously decided to take no further action in the matter for the present.

British Homœopathic Congress.

The annual Congress of Homœopaths was held at Oxford on July 23, under the presidency of Dr. Percy Wilde, of Bath. The President gave an address on "Hindrances to Truth," in the course of which he said that when they saw the phrase "pharmacological action of drugs," which appeared on the pages of every modern text-book, they must put aside the fact that a drug can no more perform any action that is not pharmacological than a man can perform any action that is not anthropological, and having done this they still have to translate the word "action" into "effect," which is what the therapeutist really means. If it is said that a drug has an opposite action in large and small doses they endowed the drug with qualities which it was absolutely impossible it could possess, because the drug is a physical agent and acts in obedience to physical laws; in whatever dose it is given it can only be compared with a force acting in a straight line. But the action of the drug set up another action, which is a physiological action, and therefore governed by the physiological law of stimulation and exhaustion. This is the effect of the drug, not its action. Several other papers were read, including one by Mr. James Johnstone, M.B., of London, on "Immunity and Serum Therapeutics in Relation to the Rule of Similars," another by Dr. John McLachlan (Oxford) on "The Bearing of Chemistry and Physics on the Homœopathic Law," and another by Mr. E. M. Madden (London) on "An Attempt to Restate the Doctrine and Illustrate the Practice of Homœopathy as one may imagine Hahnemann would have done had he lived in the present day." London was selected as the next place of meeting, and Dr. Burford, of London, was elected President, Dr. Goldsbrough being appointed Vice-President.

Sunderland Chemists' Walk.

At a committee-meeting held on July 20, it was announced that the following prizes had been offered: Silver-mounted cigar and cigarette case; 4 dozen 1*s.* 1½*d.* new skin; 5 dozen 7½*d.* new skin; and a dressing-case, value 3*l.* 3*s.* Messrs. J. Ismay & Sons, Newcastle-on-Tyne, have sent a subscription.

Dobbs's Doings.

The Sheffield Chamber of Commerce a short time ago had a communication from Mr. Dobbs, on which they decided to take no action. Any communication from the same source in future will no doubt be adequately dealt with, as Mr. G. T. W. Newsholme has now been elected a member of the Chamber.

At a meeting of the Manchester Chamber of Commerce the circular of the Poisonous Compounds Traders' Protection Society regarding the report of the Poisons Committee was discussed. A joint meeting of the Chemical and Produce Sections had been held to consider the question, and they had arranged an interview with representatives of the Pharmaceutical Society, and also with horticulturists and seedsmen. The joint committee, after consideration, resolved unanimously to support the recommendation of the Poisons Committee to the Privy Council, and asked that the Board would convey its representations to the Lord President of the Council. The Board resolved to adopt the course suggested.

Lincoln Chemists' Association.

The members of this Association met at the Coffee Palace, Lincoln, on Thursday, July 23, the President (Mr. J. S. Battle) in the chair. There were also present Messrs. Dixon, Walker, Hill, Elmitt, Wilmott, and Birkbeck. Mr. Battle reported on his visit to the Pharmaceutical Society's annual meeting. The report of the Federation of Local Associations was read and approved. The Secretary said he had written to the Lincoln Chamber of Commerce referring to the possibility of Mr. Dobbs approaching them, and asking that they might be allowed to state the chemist's case before passing such a resolution as Mr. Dobbs asked for. A reply had been received saying Mr. Dobbs had not written, but that the Council would be opposed to the poison regulations being relaxed in any way. The Secretary read a short paper dealing with the events leading up to the present medicine-stamp difficulty, and gave several illustrations of how preparations might be labelled with ailment names and still be free from duty. Labels were also presented to the meeting which had been sent both to Somerset House and to the Chemists' Defence Association. The members felt a difficulty as to the best way to proceed. The idea of publishing the formula on the label was not thought expedient. After considerable discussion no definite resolution was arrived at.

Cricket.

Notts Chemists *v.* Nottingham Banks.—Played on July 23, at Nottingham, and resulted in a win for the Banks' eleven by 17 runs. For the Chemists W. Lee bowled well, taking six wickets for 29 runs.

The Hanover C.C. (Evans Sons Lescher & Webb) met Blake & Mackenzie's eleven at Fazakerley on July 25, and were beaten by 36 runs, Hanover making 36 and B. & M. 72.

Fires.

A fire broke out at Carlton, near Stockton, on July 24, a portion of Sadler's chemical-works being burnt to the ground. The damage is placed at 1,000*l.*

Considerable damage was done to the works of Messrs. Hardman & Holding, manufacturing chemists, Miles Platting, Manchester, by a fire which broke out on July 25, although the flames were soon subdued by the joint efforts of the fire-brigade of the firm and the Manchester fire-brigade.

A fire broke out in the shop of Mr. Bagshaw, chemist and druggist, in Cross Street, Gorton. The Manchester fire-brigade was early on the spot, but the flames were not got under control before the shop and contents on the ground floor had been practically destroyed.

Hull Chemists Combine.

A meeting of the chemists of Hull and district was held on Tuesday evening, July 28, at the Imperial Hotel, for the purpose of combining the members of the craft in that centre. The old Hull Chemists' Association has not met for some years, and is apparently defunct. There has been a growing feeling that the local chemists are as sheep without a shepherd; and probably in no provincial centre are price-cutting and unqualified trading more severe. There are forty-seven qualified chemists in business in Hull, with a population of about 250,000, which works out at one chemist to 5,320 people—a very low proportion. The balance is more than made up by unqualified drug-shops and limited-companies' branches. One of the objects of the Association which was formed on Tuesday is to purchase proprietary articles from the makers, but any matter affecting the interests of chemists will be considered. One subject was mentioned, about which all present were highly indignant—namely, a pamphlet circulated by Dr. Williams's Medicine Company, when all are aware that pink pills are sold locally at net cost-price. The tone of the meeting was harmonious throughout. It was decided to work in conjunction with the P.A.T.A., and to assist that organisation in every possible way. About half the local chemists have signified their desire to join, and the Secretary (Mr. W. H. Walton, 143 Spring Bank, Hull) will be glad to hear from any others so disposed. The next meeting will be held on Wednesday, August 12, at 9 P.M., at the Imperial Hotel.

Poisonings.

Ten fatalities from poisoning have been recorded since our last report, two of which were misadventures. Laudanum caused death in three of the cases, prussic acid caused two deaths, and the other poisons were cyanide of potassium, carbolic acid, oxalic acid, salts of lemon, and hydrochloric acid. A Leicester woman gave her infant, two months old, "castor oil with a few drops of laudanum in it for wind." The child died from narcotic poisoning, the mother was cautioned, and a verdict of death by misadventure was returned by a coroner's jury. A boy of three, the son of a carrier named Bensley, living at Welney, died from the effects of drinking a quantity of Godfrey's cordial. A young woman named Kelly died at South Shields from laudanum-poisoning. Two cases of poisoning are reported from South Wales. Elizabeth Cox (38), the wife of a photographer in Cardiff, took a dose of cyanide of potassium, from which she died shortly afterwards; and Miss Mabel Trotter (20), the daughter of a retired ship-chandler at Llandaff, left home on Thursday of last week, and next day was found lying in a wood about two miles from her residence suffering from salts-of-lemon poisoning. The body of a man unknown was found last week in the Crystal Palace grounds, and beside it was a bottle containing a quantity of prussic acid. The dead body of Mr. Thomas Hulme, chemist, Bury, was found by his son in the Rochdale Road shop. Near by was the hydrocyanic-acid bottle half-full. A clerk named Magness poisoned himself with carbolic acid at Saltley; a woman named Hayes, living in Islington, took a solution of oxalic acid, and died; and Louisa Dickson, of Southwark, drank a fatal dose of spirit of salt.

Irish News.

Local newspapers containing marked items of news interesting to the trade are always welcomed by the Editor.

The King's Visit.

Among the addresses presented to the King on his recent visit to Dublin was one from the Apothecaries' Hall. The Governor (Mr. George A. Stritch) and Mr. J. E. Evans made the presentation.

Sir Thomas Robinson, managing director of Hayes, Conyngham & Robinson (Limited), was Vice-Chairman of the Dublin Decoration Committee which worked so successfully and well to brighten the city on the occasion of the King's visit.

Assistants' Association.

Mr. H. C. Thackeray, L.P.S.I., 2 Killeen Road, Rathmines, Dublin, has sent a circular to Irish pharmacists' assistants and apprentices, calling a meeting for Wednesday, August 5, at 8 P.M., in the Gresham Hotel, Upper Sackville Street, Dublin, to discuss the advisability of restarting the Assistants' Association.

A Petroleum-jelly Case.

At the Londonderry Assizes on July 23, the case of Shepherd (defendant) appellant and Devon (plaintiff) respondent was heard. Mr. Shepherd, a chemist of Waterside, Londonderry, appealed from a decree for 2*l*. 16*s*. for petroleum jelly sold which was granted against him at the suit of Alex. Devon, Belfast. It was alleged that the jelly was of an inferior quality; but the Recorder gave a decree for 2*l*. 16*s*., the full amount claimed, and costs.

A Tramcar Scene.

At the Cork Assizes on July 21, Robert Caldwell Dorman, a registered druggist, in the employment of the Cork Chemical and Drug Company, and residing at 1 Thomond Square, Cork, sued the Cork Tramways Company to recover 500*l*. damages for assault and forcible removal from one of their cars by one of the servants of the company. Witnesses who were in the same tram said the plaintiff was doing nothing at the time the conductor turned him out, and there was nothing to warrant the indignity to which he had been subjected. The jury awarded the plaintiff 25*l*. damages.

Guardians and Physic.

Professor Tichborne has reported that the samples of medicines sent him by the Ballymahon Guardians from the Abbeyshrule dispensary were up to the standard.

Mr. Guest, compounder of medicines at the Newcastle West workhouse and dispensary, has got a month's holiday (the first for three years), and the Board of Guardians are to provide a substitute at 2*l*. 2*s*. a week.

The contractor for the supply of drugs to the Strokestown Guardians has replied to a demand from that body for supplies of cod-liver oil for the dispensaries that it is absolutely impossible to procure the drug in sufficient quantities to fulfil the orders requested.

The Local Government Board have written to the Sligo Board of Guardians informing them that if the surplus stock of quininæ sulphas in the Sligo dispensary is in good condition it may be returned to the contractor. If he refuses to accept it, the stock should be distributed amongst the dispensaries in the Union.

"Oxo" for "Bovril."

In the Dublin Chancery Division, on July 29, before the Master of the Rolls, an application was made on behalf of Bovril (Limited) to restrain the Belfast and Northern Counties Railway Company from selling in the refreshment-rooms of their railway-stations as bovril the other well-known preparation "Oxo." Messrs. T. L. O'Shaughnessy, K.C., C. L. Matheson, K.C., and W. J. Chaytor, B.L. (instructed by Messrs. Frederick Sutton & Son, solicitors), appeared for the plaintiff company, and Messrs. R. H. Harrison, K.C., and D. M. Wilson, B.L. (instructed by Messrs. Torrens, Sons & Bristow), represented the defendant company. Mr. Harrison, K.C., for the defendants, said his clients would submit to an injunction with costs, the plaintiff company waiving the qnestion of damages. The directors wished it to be distinctly understood that they were not aware of any irregularity having occurred. They did not keep bovril at their stations, but they kept "Oxo." The Master of the Rolls made an order accordingly.

Scotch News.

Local newspapers containing marked items of news interesting to the trade are always welcomed by the Editor.

Personal.

Mr. Harry Thomson, of Merton College, Oxford, son of Mr. J. W. Thomson, chemist, Lochee, has been awarded a Goldsmiths' scholarship of 60*l*., tenable for four years.

The will of the late Mr. Donald McGregor, chemist, formerly of the firm of Bathgate & Co., chemists, Calcutta, and latterly of Bertha Cottage, Strathyre, has been proved in Edinburgh, the value of the personal estate being 5,041*l*.

A New Research-laboratory.

The building of the chemical research-laboratory at St. Andrews University has commenced. The money to erect it was presented by Professor Purdie and Mr. Andrew Carnegie, the Lord Rector. The building is to occupy a site to the north of the present chemical-laboratory. It will be three storeys high, and is to consist of a large research-laboratory, large and small operating-rooms, store-room, dark-room, metallurgical room, museum, preparation-room, lecture-theatre, private laboratory, and Professor's private room.

Mother Seigel's Syrup.

A. J. White (Limited) have issued a circular to wholesale and retail druggists in Scotland, intimating new minimum retail and wholesale prices, which come into force on August 1, 1903. They are as under:

—	Minimum Retail Prices		Minimum Wholesale Prices		
	s.	*d.*	*s.*	*d.*	
1*s*. 1½*d*. Seigel's syrup ...	1	1	12	0	dozen net
2*s*. 6*d*. Seigel's syrup ...	2	3	23	6	dozen net
4*s*. 6*d*. Seigel's syrup ...	4	3	42	0	dozen net
1*s*. 1½*d*. pills	1	0	10	0	dozen net
1*s*. 1½*d*. plasters	1	0	10	0	dozen net
1*s*. 1½*d*. ointment ...	1	0	10	0	dozen net
1*s*. 1½*d*. laxol	1	0	10	0	dozen net
1*s*. 1½*d*. malt cough-balsam	1	0	10	0	dozen net
2*s*. 6*d*. malt cough-balsam	2	3	22	0	dozen net

The Glasgow Railway Calamity.

Amongst the injured passengers in the ill-fated train which was telescoped at St. Enoch's station on Monday morning, July 27, were Mr. Andrew Naysmith, chemist and druggist, High Street, Arbroath, and Mrs. Naysmith, his wife. They were seated in the fourth carriage from the engine, occupying a middle compartment in the carriage along with several other passengers. The front part of this carriage was badly smashed, and the occupants of the compartment in front of it were all more or less severely injured. Mr. and

Mrs. Naysmith received a bad shock, both being considerably injured. Mr. Naysmith sustained a severe bruise on the right shoulder, while his wife was hurt about the head and face. Both, however, luckily escaped serious injury. Mr. Naysmith's professional abilities were found to be of considerable service, and he was able to render valuable assistance to the injured until the ambulance arrived and the services of doctors were obtained, he having bound up and attended numerous cases of injuries. Mr. Naysmith was interviewed by a *Dundee Advertiser* representative on his arrival at Arbroath.

Poisoned.

Mr. William Weir, a Glasgow gentleman, died at his residence in Carluke on Sunday, as the result of an overdose of chloral-hydrate.

French News.

(From our Paris Correspondent.)

The Montpellier Centenary.—A pharmacist who was present at the *fêtes* commemorative of the centenary of the Montpellier Superior School of Pharmacy sends me the following notes and personal impressions: The "solemn sitting" ("séance solennelle") was held in the Festival Hall of Montpellier University, M. Benoist, Rector of the University, occupying the chair. Among those present I noticed the Prefet of the Hérault Department, M. Pezet, the pharmacist-mayor of Montpellier, and the representatives of various local Faculties, MM. Figuier and Sigalas (Bordeaux), Broemer (Toulouse), Florence (Lyon), Herail (Algiers), Domergue, Riehet, and Gerber (Marseilles), Rocher (Clermont Ferrand). There were also delegations from all the Faculties, &c., of Montpellier University, delegations of pharmacy and other students, and a very large number of pharmacists. The total attendance was probably five hundred, and the professors in their official costume made a picturesque group in the "tribune d'honneur." After an address by the Rector, M. Massol, the Director of the Montpellier Superior School of Pharmacy, gave an interesting account of the rise and progress of this institution. He alluded to the fact that a new professorial chair (inorganic chemistry) had just been added, bringing the total up to seven. The present professors are: Physics, M. Massol (Director); organic chemistry, M. Astre; natural history, M. Courchet; materia medica, M. Planchon; pharmacy, M. Jadin; toxicology and analysis, M. Imbert; inorganic chemistry, M. Fonzes-Diacon. In the afternoon we visited various scientific establishments, the School of Pharmacy, hospitals, the ancient Jardin des Plantes, &c., and in the evening the official personages banqueted at the School of Pharmacy. After the dinner a *soirée* was held, to which we were all invited. The following day the General Association of French Pharmacists held their annual meeting under the chairmanship of M. Rièthe. The cutting of patent medicines and other matters occupied the principal part of the proceedings, but time was found to re-elect office-holders, M. Rièthe being re-elected President and M. Crinon Secretary. In the afternoon the South-Eastern Federation met under the chairmanship of M. Gourdou, and discussed the question of a tariff for "medical assistance" (pharmacy supplied to paupers or indigent persons). M. Fortuné read a report on the new pharmacy law, and the question of the legality of patent medicines was once more hotly discussed. Mutual assurance (fire and old-age pensions) for pharmacists was also studied. In the evening 150 guests sat down to a banquet organised by the the Montpellier Syndicate, presided over by M. Albigés, M. Benoist occupying the vice-chair, and numerous official personages (from the School of Pharmacy, &c.) being present. An excursion to Cette on the following day allowed the Congressists to visit the port and warehouses, &c. (not forgetting the wine-vaults), and terminated by a seaside lunch (125 guests) and a sea-trip aboard a steamer.

The total production of olive oil in Italy and Sicily (according to the official organ of the Italian Ministry of Agriculture) in 1902–3 amounted to 40,700,000 gallons, compared with 70,400,000 gallons in 1901–2, and 40,040,000 gallons in 1900–1.

South African News.

(From our own Correspondents.)

Note.—The Chemist and Druggist is regularly supplied by order to all the members of all the Pharmaceutical Societies in British South Africa, viz.:—

South African Pharmaceutical Association.
Pharmaceutical Society of Cape Colony.
Natal Pharmaceutical Society.
Transvaal Pharmaceutical Society.
Rhodesia Pharmaceutical Society.

Licences Granted to Chemists and Dentists.—Messrs George Cowe Jamieson, chemist and druggist, Cape Colony and Lewis Ambrose Roberts, pharmaceutical chemist, Great Britain, 1900, have been officially authorised to practise as chemists and druggists in Cape Colony.—The Colonial Secretary has issued licences authorising the undermentioned persons to practise as dentists in Cape Colony: Franklin Charles Lewis, Lic. Den. Surg., Fac. Phys. Surg., Glasg., 1891; John Carr, Lic. Den. Surg., Fac. Phys. Surg., Glasg., 1902.

Personal.—Mr. J. H. Millar, Ph.C., formerly analytical chemist with Messrs. P. J. Petersen & Co., Cape Town, has been appointed analyst to the Central South African Railways, with headquarters at Johannesburg.—Mr. Victor Browne, of Messrs. Lennon (Limited), Johannesburg, is recruiting his health near Grahamstown, Cape Colony.—Mr. H. Magness-Elgar, of Messrs. Martin, Elgar & Co, Cape Town, has recovered from his recent illness and operation, and when the mail left was in Johannesburg.—Mr. J. H. Dinwoodie, a well-known chemist in the Golden City, is suffering from congestion of the lungs.—Mr. Maurice M. Beiles has bought the business of Messrs. Folly & Co., Pritchard Street, Johannesburg, and will continue to conduct it under the old firm-name.

Trade of Orangia.—The Collector of Customs at Bloemfontein has issued a specification dated June 19, showing the goods imported into the Colony during the quarter ending March 31, 1903. From the Cape Colony drugs and chemicals valued at 2,552*l.* were imported, as against 8,540*l.* in the corresponding quarter of 1902. From Natal 416*l.* worth was also imported, as compared with 755*l.*; extracts and essences from Cape Colony 223*l.*, against 1,664*l.*; from Natal 107*l.*, against 116*l.*; medicinal preparations from Cape Colony 2,808*l.*, against 3 855*l.*; from Natal 651*l.*, against 559*l.*; essential and perfumed oils from Cape Colony 12*l.*, against 13*l.*; perfumery, cosmetics, powders, and soap for toilet use, from Cape Colony, 827*l.*, against 849*l.*; and from Natal 172*l.*, against 280*l.*

Trade in Kimberley.—Our Kimberley correspondent writes: "Business here is almost at a standstill. In the whole history of the town it has never been so bad before. A walk down our principal thoroughfares, even on a De Beers' pay-night, and a glance into the various stores, fail to show up the crush so much in evidence twelve months ago; indeed, many of them remained practically empty during what should be the best evening. Another thing chemists cannot get their accounts in, owing, it is said, to the state of the share market, while the business of the district has sadly fallen off. As an instance of this many local chemists used to receive numbers of postal orders every day—one or two is the most they get now. The Kimberley trade looks forward anxiously for better days."

Trade on the Rand.—The secret of bad business on the Rand is the labour question. Like the poor it seems always to be with us. The mine-owners are determined on having Chinese labour if it is possible to bluff the Government into permitting it. To gain this end the output is kept down to something like half it was the year preceding the war by placing a great deal of the labour they now possess on development work. Bad mining returns spell small business to Johannesburg druggists, who are doing a fair turnover in prescription-work, as a great deal of sickness is prevalent just now, but trade in holiday goods is completely dead. Some hard things are being said about the Government and the mine-owners. Comparisons are made with the olden days, and a number of opinions forcibly expressed by members of the trade would not look well in print.

Practising without Licences.—At the Cape Town Court on July 2 John Christian Rouch was fined 10*l.*, or in default one month's imprisonment with hard labour, for practising as a dentist without the necessary licence. William Frederick Smith was also charged at Cape Town on July 4 on remand with contravening Section 35, Part 3, of the Medical and Pharmacy Act, by practising as a medical doctor without the necessary licence. The Secretary of the Colonial Medical Society stated that all licences to practise as medical men and also recommendations for registration were given through him. The name of the accused had never been submitted to him, either for a licence or recommendation. Leo Murakki gave evidence that the accused attended him as a medical doctor, and he examined him on April 11. He paid him 17*s.* 6*d.* for his services. The accused was further remanded, and on being arraigned on July 5 pleaded guilty. He made a statement to the effect that, although he had not taken out a licence, he had been recommended in the *Medical Journal* for the same, and that it would have been only a matter of time until he had it. He was a fully qualified medical practitioner, and had diplomas from England. His Worship, in passing sentence, said that he had been convicted for the same offence in January last, and that sufficient time had been given to enable him to take out a licence. It was only fair to other licensed medical practitioners that they should be protected from men like the accused, and he fined him 50*l.*, or in default three months' imprisonment with hard labour.

Transvaal Items.—Mr. J. Schafiro, late of Schafiro & Meyerson, Pretoria, has opened the Central Pharmacy in Krugersdorp.—A new business has been opened in Kimberley Road, Bertramstown (a Johannesburg suburb), by Mr. S. B. Warrell, chemist, formerly of Natal.—Licences to act as chemists in the Transvaal have been granted to Mr. H. V. Sykes, pharmaceutical chemist (Great Britain), and to Mr. John Barclay, chemist and druggist (Great Britain).—A meeting of chemists was held at Johannesburg on July 2 to discuss the propriety of raising the retail prices of the patents affected by the new Customs tariff. Mr. F. Thomas (Lowenstein, Limited), who was in the chair, suggested that only the prices of proprietaries the wholesale price of which had been increased should be raised. A list of proprietaries in accordance with the Chairman's suggestion was then read by Mr. R. Butters, and the minimum retail price in each case was fixed by the vote of the meeting. The articles affected by the new tariff include Kutnow's saline, Owbridge's lung-tonic, Fellow's syrup, Kepler's malt, Brand's essence, Scott's emulsion, coca-wines, mineral waters, proprietary soaps, and all American proprietaries. A committee, consisting of Messrs. Smith (Smith, Rive & Co.), A. Rennie, Thomas, Butters, A. M. Lewis, Ingram, and Warrell, was appointed to investigate the retail prices of proprietaries with a view to drawing up a list of minimum prices for the use of Johannesburg chemists.—For the four months ending April, 1903, the imports of drugs and chemicals into the Transvaal amounted to 202,000*l.*, against 113,000*l.* for the corresponding period of 1902. Of oilmen's stores and groceries 168,000*l.* worth were imported, against 69,000*l.* for the four months of 1902.

Cape Analyst's Report.—In further reference to the annual report of Mr. C. F. Juritz, M.A., Cape Town, briefly noticed in the *C. & D.* of July 18, page 112, it is interesting to learn that out of ten samples of castor oil analysed one was of inferior quality, containing an excessive quantity of free acid. The contents of a bottle labelled "Lin. camph. co." were found to have been mixed with about 25 per cent. of camphorated oil and a very small quantity of oil of turpentine. What claimed to be "spt. æther.," turned out a mixture of ether with sweet spirit of nitre. Two samples labelled "Pil. hydrarg." contained on an average 22 and 24 per cent. by weight of mercury. A bottle of "olive oil" was found to contain about 6½ per cent. of carbolic acid. The sale of "Witte Vometief" by general dealers in country districts resulted in some samples of that article being forwarded for analysis. The medicine is made up in paper packets, six being enclosed in the labelled wrapper; each packet contains 7 or 8 gr. of the powder. On analysis, the substance proved to be a mixture of tartar emetic with acid tartrate of potassium and some sugar. The amount of tartar emetic was such that one dose contained about 2 gr. of the active ingredient. Two samples of "buchu-essence" contained about 45 per cent of alcohol, an amount equivalent to only three-fourths that prescribed by the B P. Owing to insufficiency of the samples it could not be determined whether the article had originally been full strength and had subsequently been diluted with water, or whether it was deficient in buchu as well. A sample of "vinegar-colouring" was found to consist of caramel (burnt sugar), together with 4 per cent. of acetic acid; it was evidently intended to serve as a basis for making artificial vinegar. Another article of somewhat similar nature was examined under the name of "vinegar malt extract." It contained 0·47 per cent. of acid (calculated as acetic acid) and 60·2 per cent of extractive matter.

Colonial and Foreign News.

International Exposition at Milan.—The completion of the Simplon Tunnel is to be celebrated at Milan by an international exposition in 1905.

Sham Patent Medicines.—Reuter telegraphs that the Barcelona police have discovered a manufactory, conducted on a large scale, of spurious pharmaceutical products made for the purpose of being put on the market under cover of different French trade-marks. A clue to the detection of the fraud was obtained from information supplied by the Union of Manufacturers in Paris.

Carnauba Wax in Hamburg.—The British Consul-General at Hamburg reports that carnauba wax was in considerable demand during the greater part of last year, the importations reaching 11,560 cwt., against 7,644 cwt. in 1901. The use of this product by German industries appears to be developing from year to year, and the Hamburg market has now become of greater importance than that of the United Kingdom.

Scientific Progress in Sweden.—Since the completion of the Ofoten railway, an observatory for the promotion of natural science has been erected near the colony of Wassijaure in the extreme north of Sweden, about two miles from the Norwegian frontier and far beyond the Polar Circle. It will remain open all the year round, and Messrs. Westergren (geology), Haglund (entomology), Roman and Sylven (botany) are already in charge.

Saccharin in Spain.—Saccharin is also to be ousted from Spain. A Bill has been presented to the Cortes to prohibit in future the importation, manufacture, or sale of that compound or substances containing it, except for medicinal use. This is to extend to all foods and refreshments—in fact, every article of which saccharin or an analogous compound, or a mixture of glucose and sugar is an ingredient, is to be excluded.

"Impressive" Pharmacy in Austria.—Some time ago the German Pharmaceutical Association in Vienna presented a petition to the rectors of all the Austrian Universities, requesting that the ceremony of investiture with the degree of Magister in Pharmacy be performed in the same solemn manner as usual with that of doctor in medicine. This request has been granted, and on July 11 the degree was conferred on fourteen pharmacy students with due impressiveness at the University of Prague.

Medicines in Cuba.—The French Consul in Santiago di Cuba states in his report that the exportation of pharmaceutical specialities to Cuba offers a fair opening for trade. The tropical climate engenders many kinds of illness, the natives using with preference either simple remedies or well-advertised patents. Of course, special care must be taken in putting these up, owing to the damp climate. Medicines in a compressed form would prove most practical, and a *sine quâ non* is the addition of exhaustive directions for use in Spanish.

Foreign Trade-marks in Japan.—The imitative power of the Japanese exemplifies itself in the extraordinary facility with which they counterfeit foreign trade-marks and trade goods, says our Consul at Yokohama. It would not be amiss if commercial travellers were empowered to register in Japan the trade-marks of the manufacturers for whom they travel, as one or two cases have come under notice during the past year where a traveller on his arrival found that the articles he represented were being freely and cleverly imitated to the loss of his employers.

RUSSIAN NOTES.—Owing to the great consumption of ether and Hoffmann's anodyne by a large proportion of the population as a cheap and effectual means of inebriation, the Russian Medical Council some time ago prohibited their sale except upon a prescription. This restriction has now been repealed.—The Sanitary Commission of St. Petersburg is now actively engaged in repressing the use of salicylic and boric acids as preservative-agents in food-stuffs. The use of the first is prohibited, but owing to diversity of opinion as to the effects of boric acid, this question is deferred for further consideration by the Medical Council.—The Russian Government has offered 50,000r. for the discovery of a suitable denaturiser for alcohol, adapted to Russian circumstances.

Outings.

A portion of the staff of Messrs. Stone & Son, chemists, Exeter, held their annual outing on Saturday last at Torquay.

The sixteenth annual excursion of the firm of Cuxson, Gerrard & Co., surgical-dressings manufacturers, took place on Monday, July 20. Special saloons conveyed the party to Llandudno. This year's commemorates a quarter-of-a-century's establishment of the business, and the fact was duly noted in the speeches which followed an excellent repast.

At Alnwick, Northumberland, on Wednesday, July 15, the members and friends of the Newcastle and Sunderland Chemists' Associations had their joint annual excursion. The party numbered sixty-three, Sunderland contributing thirty-four of this number. A substantial tea was partaken of at the Star Hotel, Temple Street. Owing to the wet weather, a concert was arranged indoors, and proved a decided success.

The annual excursion of the Wolverhampton and District Chemists' Association took place on July 23, when a party of thirty members journeyed to Hodnet, where carriages were waiting. A drive through four miles of lovely country brought the company to Hawkestone Hotel, where guides were at hand to conduct the party through the park and to view the caves in the vicinity. Rain, however, considerably interfered with the programme, and part of it was abandoned. After tea, Mr. Perry, President of the Midland Pharmaceutical Association, proposed the health of the President (Mr. Willcock). Other toasts included "The Ladies" and the Secretary.

The members of the Peterborough and District Chemists' Association are, on Thursday, August 12, to visit Stamford, travelling from Peterborough, G.N.R., at 1.44, arriving at Stamford 2.16. It is proposed that the party on its arrival at Stamford should visit Burghley House, and by permission of the Mayor the Stamford Corporation regalia will be shown to the visitors. High tea will be served at the Stamford Hotel at five o'clock prompt; tickets, 2*s.* 9*d.* each. Intending visitors are requested to send in their names to the Hon. Secretary, Mr. J. E. Saunders, Narrow Street, Peterborough, or to Mr. J. S. Prior, 19 High Street, Stamford.

The students of the Leeds College of Pharmacy held their first botanical excursion of the term on July 25, the place selected being Arthington, in the lovely valley of the Wharfe. Leaving Leeds at noon, the party first journeyed to Adel, where the woods proved to be of great interest, yielding a good supply of specimens, each of which was explained by the Principal, Mr. F. Pilkington Sargeant, F.C.S. Adel Church, one of the finest specimens of Norman architecture in the country, excited the admiration of all. A further walk of five miles and the party reached Arthington, a beautiful village on the banks of the Wharfe. Tea was served at the Wharfedale Hotel, and a most enjoyable day concluded with the journey home, which was relieved by the mellifluent outpourings of several enthusiastic songsters.

Medical Exhibition.

THE annual meeting of the British Medical Association is being held this week at Swansea. On the opening day (Tuesday, July 28) the weather threatened to mar the enjoyment of those (few ?) medicos and their lady friends who attend more for pleasure than for science. The day opened "drizzly," and "soaky" showers fell at intervals, making Swansea and its environs look their worst. Our interest there was chiefly centred in the Exhibition, by means of which many firms connected with pharmacy keep their novelties before the medical profession, and to the exhibits therefore we devote ourselves entirely. The exhibitors have pitched their stalls, so to speak, in the Free Library, and their shows can scarcely be said to be displayed under the most propitious circumstances, for they are scattered over the three floors of the building, in passages and in ante-rooms, and are mixed up with works of art in a rather disconcerting manner. While there may be a certain appropriateness in having "The Bath of Psyche" as a background to the products of the PURE ENAMEL BATH COMPANY, Vegox must, of course, appear even to the unimaginative onlooker an incongruous corollary to the doings of "Perseus and Andromache." However, in spite of the drawbacks of their environment, there are many interesting and good exhibits, and the exhibitors display the stoical cheerfulness of the average Briton.

The pharmaceutical exhibitors include PARKE, DAVIS & Co., who have one stall opposite the entrance on the ground floor and another on the second floor. In spite of the wet, there were many medical men present on the opening day, and Messrs. Parke, Davis's staff (headed by the irrepressible Mr. Hickey) were kept busy expounding the properties of acetozone (benzoyl-acetyl-peroxide), the new antiseptic, while the now popular adrenalin claimed many inquirers. The other P., D. & Co. preparations are paraded in full force, serums and toxins being abundant. Blacklegoids—pellets of blackleg-vaccine—are rather veterinary for the *habitués* of the Swansea meeting, but still they appear amongst the others, and medicinal elixirs and syrups (always growing) have full place. Digestive products, euthymol-preparations, gelatin and sugar coated pills, and effervescing tablets and granules are shown, and a special corner is kept for medicine-cases and medicine-chests. Near by on the same floor are OPPENHEIMER & CO. (LIMITED). Laxoin, described in THE CHEMIST AND DRUGGIST some time ago, is shown as the latest among a multitude of palatinoids, and among other novelties are Pinheroin (a combination of heroin hydrochloride and terpin hydrate), a new insufflator, and a new hypodermic case. The "patent optimus powder insufflator" is a sort of bulb syringe with pepper-box nozzle for dusting powder on wounds. The dredger nozzle may be replaced by a vulcanite nozzle specially adapted for use in post-nasal operations. The "Compactum hypodermic case" contains an all-glass syringe on the model of Dr. Roux, and a revolving-rack holding one dozen hypodermics. The BAYER COMPANY (LIMITED) are showing aristochin, aspirin, helmitol (anhydromethylene citrate of hexa-methylene-tetramine—a new antiseptic highly spoken of), mesotan, saloquinine, and several other synthetics, including theocin, the first alkaloid of the xanthine group that has been produced synthetically. On the first floor C. J. HEWLETT & SON have a neat and attractive exhibit in the corridor. Hewlett's liquors are, of course, much in evidence, and Mr. C. J. Pitt is in charge to punctuate their virtues and importance in medicine. An apparatus for the speedy and sure application of Unna's pastes is shown. The pastes are prepared in the form of gelatin discs containing zinc oxide, boric acid, ichthyol, resorcin, &c., in stated percentages and combinations. When required the disc is placed on a porcelain dish, which it just fits, and heated in a miniature water-bath, till it melts and is ready to brush over the affected parts. The bath is sold packed in box for 7*s.* 6*d.*, and the discs cost 2*s.* per dozen. ARTHUR & CO. have a small exhibit of their pharmaceutical products in the same corridor, where likewise PHILIP HARRIS & CO. (LIMITED) have made a bright little corner. Pharmaceutical specialities and surgical instruments are the substance of the latter display. A new catheter, "Bartrina," is flat shaped instead of round, and it has a rigid point, which makes it easier for insertion. A new use has been found for antiphlogistine, according to the representative of the Denver Chemical Manufacturing Company. It has been found of considerable benefit in the treatment of horses, and this opens up a vista of veterinary treatment which is likely to rival that of its use for human beings. A local firm of chemists—J. T. Davies & Co.—have an ambitious and business-producing exhibit of surgical instruments and appliances. It includes aseptic hypodermic and serum syringes, sterilisers, speculums, surgical dressings, and so forth. On the second floor Ferris & Co. have a large exhibit of their well-known "Ever-ready" medical and surgical necessities. The "Bristol" dispensing cabinet—a complete dispensing equipment for a doctor's surgery—still exerts its old fascination on the perambulating medico, and the latest remedies in "Elixir" and other forms are magnetic. Ung. sedresol is a sedative antiseptic and healing ointment, having the advantages of being neither poisonous nor irritant. Saxol is a colourless and odourless hydrocarbon oil, recommended as a vehicle for the application of menthol, &c., and "Hatch" is the name of a new inhaler for the administration of ethyl chloride. Von Heyden's pharmaceutical products are shown by Burgoyne, Burbidges & Co., and Wyleys (Limited) display the excellence of their pharmaceutics in an appropriate corner. The Charles H. Phillips Chemical Company show Phillips's milk of magnesia, and S. Kutnow & Co. (Limited) show Kutnow's powder and Kutnow's anti-asthmatic cigarettes.

There is little of descriptive detail to be done in enumerating the exhibits of those firms devoted to nutrients. Novelties are difficult to discover, and, indeed, with staple and well-known foods practically unnecessary. Therefore it is only necessary to mention the names of the firms to indicate the nature of the exhibit. On the ground floor are Bovril (Limited), Callard & Co., Henri Nestlé, the British Somatose Company (Limited), and Cheltine Foods (Limited). The new Cheltine preparations include a malted-milk chocolate of fine full flavour and a nutrient milk-chocolate. These are put up in 3*d.* and 1*d.* packets. "The Cod-liver Oil Famine" is taken advantage of by Virol (Limited) in a large poster, in which it is suggested that virol will fill the gap made by the dearth of the oil. On the first floor Cadbury Brothers (Limited), Maltova (Limited), G. Van Abbot & Sons, and Mellin's Food (Limited) are located; while higher up are to be seen representative exhibits by Liebig's Extract of Meat Company (Limited), Stephen Smith & Co. (Limited), Brand & Co. (Limited), Keen, Robinson & Co. (Limited), the Marmite Food Extract Company (Limited), Vegox (Limited), Scott & Bowne (Limited), Cosenza & Co., the Manhu Food Company (Limited), the Myosin Albumin Meat Extract Company and Billon's Ovo Lecithin Depôt.

Besides those already mentioned there are other exhibits entirely devoted to instruments and appliances for use in the practice of surgery and the healing art. Surgical instruments for every conceivable purpose apparently are shown by Arnold & Sons, by the Holborn Surgical-instrument Company, by Down Brothers (Limited), and by Mayer & Meltzer. Electrotherapeutics are adequately demonstrated by the Dowsing Radiant Heat Company (Limited) (who have a room all to themselves on the top floor), by the Sanitas Electrical Company (Limited), and by the Electro-Neurotone Company (Limited). At the last-named stall, besides the flat-iron arrangements for the treatment of sciatica and neuralgia, there is a new pattern throat-lamp which is novel. It consists of a flat toughened-glass tube (used primarily as a tongue-depresser), fitted with a movable metal cup, through which insulated wires pass to the top of the tube. This can be fitted with an incandescent lamp of any voltage. The lamp is thus entirely of glass, is shaped like, and acts as, a tongue-depresser, and being removable can be completely sterilised. Many ingenious apparatuses for external electric application, massage-treatment, &c., are to be seen at this stall, a combined throat-lamp, laryngoscope, and photophor being specially worth looking at. Beside the main entrance Harry W. Cox (Limited) are giving demonstrations with high-frequency apparatus.

Liquids with medicinal values claimed for them are numerous. Near the front entrance Stower's lime-juice is situated. Alexander Riddle & Co. (Limited) claim that their lime-juice is not only an excellent table-drink but that it is practically invaluable "for dyspeptic dispositions and that it is used extensively for rheumatism, gout, eczema, pneumonia, and in all fever and inflammatory cases." Stower's clarified lemon-squash is also said to be redolent of therapeutic properties. The Apollinaris Company (Limited) have a big show of Apenta and Apollinaris, and Messrs. Arrowsmith and Selfe, who are in charge, are hustling things very successfully. The newest idea (and one that has evidently met with the appreciation of the doctors) is large stone bottles of Apollinaris, each bottle containing 40 per cent. more water than that contained in an ordinary syphon. The cost is about 5*d* per bottle, and a patent rubber cork is supplied free with every bin of twenty-five bottles. This stopper keeps the water in its natural state. W. Glendenning & Sons (Limited) have constructed a specially bright corner for themselves in the corridor at the foot of the stairway. There Glendennings' meat-and-malt wine and Felixer are very much to the fore. Feltoe & Smith (Limited) are showing their "Specialité" brands of lime-juice cordial and lemon-squash and lemon-squash crystals. A small show of Friedrichshall water is being made by C. Oppel & Co., while the rival claims of the Harrogate, Leamington, and Llanwrtyd spas are being extolled by representatives of each of these places. The last-named possesses sulphur, chalybeate, and saline waters, and they provide a good exhibit. Arabella is not a lady, as one might not unnaturally suppose, but "a natural mineral water of exceptional therapeutic value in all cases of liver and kidney complaints." Camwal (Limited) have two exhibits on different floors. In one the method of demonstrating the purity and strength of the Camwal waters is shown, along with a fine show of Camwal syphons, splitlets, fruit-syrups, ginger-beer in stone bottles, and last, but not least, Fontalis. This natural British table-water is being specially pushed, and patriotic doctors are not found wanting.

Disinfectants are shown by Newton, Chambers & Co. (Limited) (Izal specialities), McDougall Brothers (especially pretty exhibit of the "Kudo" specialities), and by Jeyes' Sanitary Compounds Company (Limited) (Creolin, &c.). Surgical dressings are the province of the Sanitary Wood-wool Company (Limited) (Hartmann's wood-wool goods) and of the Liverpool Lint Company.

Ronuk (Limited) impress the aseptic importance of cleanliness and high polish in wood-work, and are proud of the fact that besides keeping many of his Majesty's public buildings well polished, they have recently got a "Ronuking" contract for the Victoria Hospital, Belfast. G. H. Zeal has a variety of his well-known clinical thermometers on view, which the doctors are carefully testing. Medical books in profuse variety are being shown by Cassell & Co. (Limited), E. & J. Griffiths, H. K. Lewis, Rebman (Limited), and W. B. Saunders & Co.

Recent Wills.

Anderson.—Mr. Thomas Sherman Anderson, chemist and druggist, of 45 Edgware Road, W., and of Colin Park, The Hyde, Hendon, died intestate on January 7, and his widow, Christiana Anderson, renounced administration of the estate. Letters of administration have therefore been granted to the Rev. Sherman George Outram Anderson, of St. Paul's Parsonage, Great Yarmouth, clerk, the son, by whom the estate is valued at 1,431*l.* 1*s.* 1*d.* gross.

Bedford.—The will of the late Mr. James Bedford, of Sycamore Lodge, Woodhouse Cliff, Leeds, chemical-manufacturer, has been proved at 143,049*l.* gross.

Tonge.—The will (with three codicils) of the late Mr. George Tonge, "father of the drug-trade," of 25 Brunswick Place, Brighton, formerly a member of the firm of wholesale druggists now known as Messrs. Hodgkinsons, Clarke & Ward, 101 Whitecross Street, E.C., who died on March 18, 1903, has been proved by his executors, Mr. Charles Francis Tonge, 24 Queen's Road, Richmond, nephew, and Mr. Gilbert Augustus Tonge, of Mitre Square, E.C., nephew, the executors. The gross value of the estate is 55,611*l.* 7*s.* 8*d.*, and the net personalty 52,472*l.* 13*s.* 1*d.*

Observations and Reflections.

By Xrayser.

The Globe-trotting Prescription reproduced on page 170 of the Summer Number is about the most interesting dispensing curiosity I have seen. It only lacks a record of the prices charged for the medicine by its sixty endorsers. But it furnishes an awful example for Dr. Burnet, and at least shows how urgently called for his lecture on ethics of dispensing is in Bond Street, Cairo, Carlsbad, Brighton, Paris, Edinburgh, and other places. Surely some of those high-class chemists urged the patient to go back to the prescriber again, if only to pay him conscience-money. Dr. Burnet's other ethics are like unto this one—all admirably adapted to a world which is all West-end. They point, as he himself recognises, to a supremely high level of righteousness, but they should be commended for that reason only. It is ultra-risky for Dr. Burnet to promise that the righteousness he advocates "will pay." By refusing to treat headaches and toothaches and the like, the doctor says, the chemist "will soon gain a reputation which will lead the medical men in the district to send their prescriptions to him." Not till long after the verdict "Starved to death" has been found on the poor chemist's body, will this reward of his righteousness come to him.

The Federation Report evidently proceeds from the pen of a ready writer. The definition of its functions is alone worth a year's subscription. Some people have complained, it appears, that the Executive Committee has not led the way vigorously enough. But the reporter points out that the Federation is not expected to initiate work; it "is simply the organised medium of intercommunication between its constituent units." This Pickford sort of duty must have been pretty much of a sinecure during the past year. The initial work runs to a columnful, but the transmission of communications between the constituent units is not distinguishable. There is no evidence that any of the units have initiated anything. If they did, are there not the papers which do the intercommunication effectively enough? Meanwhile a few new associations have been promoted and some shaky ones have been resuscitated. If these are to be dependent on artificial respiration supplied from Glasgow or Newcastle, I doubt if they are worth promoting or resuscitating. The suggestion that the co-option of the Chairman of the Federation to the Pharmaceutical Council was a recognition of his Federation good work is picturesque, and the assurance that the House of Commons will show the effect of the Federation's educative efforts is both premature and sanguine. But evidently the Executive Committee has been overdoing things. It has outrun the constable by 4*l*. 3*s*. 8*d*. One meeting in London next year instead of two will have to suffice.

The French Pharmaceutical Poets referred to on pages 160 and 161, may be more or less inspired than the British bards who so often brighten the pages of the *C. & D.*, but the samples given are not long enough to enable anyone to form a judgment. Moreover, even the mental translation of poetry is generally fatal to it. Victor Hugo's poems "done into English," as I have seen them turned out in schools, strike one as rather platitudinarian. The writer of the article alludes to some verses by M. Genevoix, a former President of the Paris Society of Pharmacy, and says these have disappeared. It happens that at least one copy has been preserved. It was given to me by the author. I knew M Genevoix as the director of the Pharmacie Centrale de France, the great wholesale drug-house in Paris. He was a stern, brisk, business man, a veritable captain of industry, and the last man in the world I should have suspected of the offence to which he pleaded guilty. His little book is entitled "Rimes de l'Officine"—most of the pieces were written for special occasions. The first is entitled

"A la Pharmacie," and was recited at a pharmaceutical banquet in 1885 at the Exposition Universelle held in Paris that year. It begins thus—

> Art simple, libéral, du public incompris,
> Tes flancs ont abrité plus d'un noble génie,
> Le monde t'a raillé, t'a jeté son mépris,
> Et toi, pour te venger, tu créas la chimie.

Pharmacists created chemistry to show the world what they could do—just turned out the science as we might have made a batch of syrup of squill. But M. Genevoix knew his men. French pharmaciens are inveterate grumblers. They are all convinced that they are "savants incompris,' and they like to have it recorded in verse or prose. There are other stanzas in his book, one on the Codex, 1866, several on pharmacy in history, and one on the dividend! This was recited at a dinner of the shareholders in the Pharmacie Centrale, held after a meeting when 13 per cent. had been declared.

Radium is coming into medical practice, as Mr. Glew forecasts, and it may come very rapidly. Mr. Frederick Soddy, of Montreal, the young scientist referred to by Sir William Ramsay in his Bradford speech, writes an important article in the *British Medical Journal* of last week explaining how to get the emanations into the lungs. He evidently believes these are to be the consumption-cure of the future. Mr. Glew remarks that radium is constantly giving off heat, and if, as Sir William Ramsay estimates, a drachm or so of radium would light up a room for two or three thousand years, I suppose a much smaller quantity would keep a house warm for a winter if the heat were properly collected. It may be worth mentioning that though radium is so much talked about, it is not named in the new part of the Oxford Dictionary lately published (R to Reactive). At least, it does not appear between radish and radius.

Shop-windows are the most effective part of a retail chemist's advertising, but the *C. & D.* investigator (page 129) does not appear to have fallen into much temptation from these displays in his walk from the City to Regent Street. It needs saying, though I am sorry to say it, that in this respect the company shops beat the other chemists' hollow. They provide a lot to look at, they explain everything, and they price everything. The public can buy from those windows. Naturally chemists who wish to cultivate a professional sort of business will not adopt that style. A wire blind is the best for them. But they are very few. One firm, I notice, offers to pay for window-space instead of paying the money to the big newspapers. I believe in that policy. If I had a new article to introduce and a few thousands to spend on making it known, I think I would far rather have the use of 500 chemists' windows in the chief streets of London for a month than I would have a dozen columns in the London dailies, and I expect the windows would cost me less. One great advantage of the window-advertising would be that when, after seeing my product twenty or thirty times, a member of the public was at last brought to the proper frame of mind, he could be bagged on the spot.

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Editorial Comments.

The Bristol Conference.

Before the fortieth meeting of the British Pharmaceutical Conference was much more than an hour old there came to the members from the sage of Watford a characteristic letter about the Conference's origin. One has to go back more than fifty years to the first germ of it. Dr. Attfield has unearthed the speech made in that year at Bristol by the late George Frederick Schacht regarding peripatetic meetings of the Pharmaceutical Society. The reminiscence is interesting, but it is the whole letter that is specially valuable, coming as it does from one of the few survivors who actually organised the first meeting of the British Pharmaceutical Conference in 1863. We do not mention it on this account, but rather as an interesting demonstration of how much the Conference owes to Bristol, as to all other towns which it visits. It needs no effort to say that without such hearty hospitality as that which Bristol has given the members of the Conference this week the body would not survive another four years. If the enthusiastic co-operation which chemists in the cities visited year after year were twice or three times in succession turned to indifference, the life would go out of it. We think British pharmacy should not forget what it owes to the principal cities of the United Kingdom in popularising the Conference. As a purely British body, instituted for the purpose of promoting pharmaceutical research and pharmaceutical friendliness, it is, unlike the Pharmaceutical Societies, quite self-supporting, being dependent upon a small membership-fee for the continuance of its work, which includes a *Year-book* that costs almost all the subscription. The officers work without fee or railway-fare; indeed, there is not within our knowledge any other pharmaceutical body with similar functions and so representative of a great Empire which works so cheaply. If it were not for the fact that the Conference is held in real esteem by the chemists of the British Empire, and especially by those of Great Britain and Ireland, pleasant and profitable meetings such as that we report this week would not be possible, and the Executive have this fact to support them in their task of producing pharmaceutical bricks with a minimum of straw. We refer our readers who are not members of the Conference to the annual report, where they will learn the direction in which they can best assist in the good work.

It has been customary for us to summarise the proceedings at the annual meetings in the present fashion, and we see no reason to depart from it.

The President's Address

deserves first mention. It is printed in full (page 212 to page 221). Mr. Idris commenced appropriately by referring to the possibilities there still are in pharmacy for making money, and showed by the successes of three pharmacists, who have died since the last meeting, what can be done. The three were F. B. Benger, G. Mellin, and John Robbins. The last was the best example, because Mr. Robbins got on the way to fortune when an assistant, by making, after shop-hours, two pints of hydrogen-peroxide solution for Dr. B. W. Richardson. That was not much to do, but the peroxide was unobtainable in England just then, nobody knowing how to make it strong enough, but Robbins had solved the problem. Passing from this topic, Mr. Idris briefly touched upon the chemistry of essential oils, strongly condemning the modern tendency of adapting increased knowledge of the chemistry of these oils to their adulteration; and, after a few sentences in respect to the refrigeration process of making aërated beverages, and reference to the Poison Committee's report, passed on to the most prominent subject of the address—viz. the necessity for State interference to ensure that medicines prescribed by medical men shall not be dispensed by the prescribers. In his advocacy of this proposition Mr. Idris took a strong line of argument, perhaps too strong, because one consideration has to be kept in view in regard to this matter—viz. that the Legislature of this country and the temper of the people are totally against such restrictive measures as those which exist on the Continent, whereby liberty of action on the part of physicians and pharmacists is restricted within irksome limits. This, we think, can be easily demonstrated; but, granting it, we are left with the fact that a discontinuance of the practice of dispensing by medical men in England and Wales must be in a large measure voluntary on their part, as it has been in Ireland and Scotland. Mr. Idris has chosen the stronger method of attack. By citing instances in which medical practitioners have paid the last penalty of the law for criminal poisoning, and by showing from reported cases that dispensing errors are far more common in doctors' surgeries and kindred places than in chemists' shops, he supplies a basis for State interference with the present system. Mr. Idris did not mince matters; he went as far as the coroner's court, and suggested that there is a danger, when the man who dispenses the medicine may also write the death-certificate, that no inquest will take place. It is well to have such things stated (for these considerations must take an important place in any public inquiry on this subject), and Mr. Idris went through the unpleasant task in an amiable manner. It may be appropriate to mention that a committee of the British Medical Association is approaching the subject from a different standpoint, but for similar ends to those which Mr. Idris desires. Owing to the changed conditions of medical practice, it is considered that doctors should be regarded by the public less as dispensers of medicine and more as medical advisers. Further, that counter-practice is fostered owing to the fact that a large part of the business which chemists and druggists are qualified by law to undertake never comes to them because doctors in England and Wales do their own dispensing. It is many years ago since we first pointed out that the conditions now prevalent in England formerly existed in Scotland, and by mutual agreement was adopted the better and safer plan of "pharmacy for the pharmacist, and prescribing for the physician."

The Condition of the Conference

is more satisfactory this year, and the Executive's report shows that the body is becoming more imperial in its scope. It is a regrettable feature of this meeting that Mr. Francis Ransom, of Hitchin, the senior Secretary, has found it necessary to retire from that position. As being amongst those who have been brought closely into contact with Mr. Ransom in his official capacity, we may add our appreciation of the constant courtesy which he has exercised in the performance of his official duties. He is succeeded in the senior Secretaryship by Mr. E. Saville Peck, who has been acting as junior since Mr. Naylor's retirement; and Mr. Edmund White, B.Sc., of St. Thomas's Hospital, has been appointed junior Secretary, thus restoring the association with his institution, which was broken when Mr. Sydney Plowman, F.R.C.S., went to Melbourne. We now proceed to give notes on the papers, and the discussions that followed them.

Absolute Alcohol.

Dr. Sydney Young, F.R.S., professor of chemistry at Bristol University College, is a well-known authority on still-heads—that is, the different forms of still-heads used in experimental distillation. Some time ago, in communications to the Chemical Society, he described a number of these still-heads, and made special reference to the preparation of absolute alcohol by fractional distillation and without the use of lime as the dehydrating agent. Instead of lime, he mixes the alcohol with benzene and water, and strange to say, on boiling this mixture with a suitable still-head, the alcohol comes over practically pure, the benzene present being so minute a quantity as to be indetectable by any chemical process (a perfumer "spotted" it, however). If hexane be used instead of benzene the alcohol distillate is pure C_2H_5OH. Dr. Young filled the rest of the time up to the luncheon hour, and, saving a few remarks from Mr. T. Tyrer, there was no real discussion on his paper. After luncheon a lantern-lecture was given by Mr. MacEwan in a small hall upon the

Pharmaceutical Institute of the University of Berlin.

This consisted of a series of notes by Professor H. Thoms, Ph.D., Director of the Institute, describing thirty-four lantern-slides, which were mostly devoted to the internal fittings of the Institute. The demonstration gave rise to an unexpected discussion, in the course of which Dr. Symes re-voiced his old grievance that the Pharmaceutical Society, as the representative body in this country, does not have at Bloomsbury Square a pharmacy laboratory with modern apparatus on a small scale. Mr. Tyrer and Mr. Druce also referred sympathetically to this, and the President gave some interesting information regarding distilled water. Returning to the lecture-hall (to the regret of many, as its acoustical properties are bad), Mr. F. W. Branson, of Leeds, read a paper on the

Determination of Uric Acid,

by Dr. Dimmock, of Harrogate, and himself. In this were described an apparatus and method for the rapid estimation of uric acid in urine. The authors precipitate the acid as ammonium urate, by salting it out with ammonium chloride and subsequently collect the urate, wash carefully and allow it to interact with hypobromite solution in a similar manner to urea, so as to obtain the available nitrogen, and calculate from that the amount of uric acid present in the sample taken. The advantage of having one piece of apparatus, and that a familiar one, for determining both urea and uric acid will be appreciated by urine-analysts, and it may be pointed out that, although the authors do not explain everything, they have, working independently, obtained concordant results by their process. Dr. Dimmock may be remembered as an assistant to the late Professor Redwood.

The Willows

have suddenly become of much pharmaceutical importance. Last year's paper by Dr. Jowett has been followed up on the histological side by one of his colleagues in the Wellcome Research Laboratories, Mr. Perrédès. The result so far is an elaborate communication accompanied by a series of plates. The communication is summarised on page 226, the author showing the distinguishing characters of the *Populus* and *Salix* genera. Mr E. M. Holmes also communicated a paper on the "Willows used in Pharmacy." In this he described some observations he has made upon the species of willow that are grown in this country, and especially upon those willow-barks which yield salicin. The communication appears to have arisen from recent litigation in Edinburgh, and the result of Mr. Holmes's inquiries points to the fact that the salicin-yielding willows are grown in Great Britain for other than pharmaceutical purposes, and the bark is therefore not utilised by chemical-manufacturers There are eight distinct species cultivated or harvested, three of them being true willows and the others osiers. There are also several varieties, but none is at present of the slightest pharmaceutical importance. Mr. Druce confirmed these observations, and Mr. Cowie, of Edinburgh, commented upon the need for a reliable method of assaying the bark for salicin.

The Waters of Bath,

by Mr. Hallett, gave the Conference a foretaste of what they were to see in the ancient city a few hours later. Mr. Hallett's paper is on page 230. It described the constituents of the waters, the origin of the spring, and recent observations by Dewar on the constituents of the gas which comes from the spring. A reference to helium brought out some interesting observations by Mr. F. W. Branson and others on the use of radio-active substances in medical treatment. Mr. Branson has been working at the subject for some time, and has obtained interesting results. Though little of the afternoon now remained, the President ventured to call upon Mr. Edmund White to read a paper by himself and Mr. H. Rodwell on

The Making of Compressed Tablets.

This paper is printed very fully on page 231. It suggests the use on the retail and fairly large scales of two distinct excipients, each containing cocoa-butter as the main element, and each being suited to a particular class of substances to be compressed into tablets. Formulas are given. Incidentally Mr. White referred to the necessity for pill-excipients being reduced to something like order; and there was quite a brisk discussion on the paper, which terminated the afternoon proceedings.

Wednesday's proceedings commenced with a consideration of

Concentrated Liquors.

Mr. F. C. J. Bird has made previous contributions on the B.P. concentrated liquors which are found to serve a useful purpose, but the formulas are not quite satisfactory. The first of two notes communicated by him this week was on liq. rhei conc. As made according to the official process, this deposits considerably, because the liquor is a fully saturated solution, and consequently deposits with changes of temperature. Mr. Bird therefore suggests the addition of a modicum of glycerin in order to retain the extractive matter in solution. The senna liquor is also a bad one, the official method of making it being so tedious that the percolate ferments before it can be concentrated. Mr. Bird overcomes this by using chloroform water as a menstruum, and gets rid of it and avoids precipitation in the finished product by heating the percolate for five minutes at 180° F. Other slight modifications of the B.P. method result in a much better liquor. Several speakers testified to the practical value of the papers, but they said nothing to amplify Mr Bird's observations. Next, Dr. F. B. Power was called upon to read a Wellcome research paper by himself and Mr. F Lees on

Ko-sam Seeds,

which are used in the East as a remedy for dysentery. The seeds have been examined before, but there was good ground for undertaking the work again. They are the product of *Brucea sumatrana*, Roxb., and are intensely bitter. Power and Lees have proved the presence in them of an enzyme, 1·8 per cent. of tannic acid, 20 per cent. of a fatty oil, and two bitter principles, but not quassin, as was stated by Heckel and Schlagdenhauffen. This paper was commended for its thoroughness, and was followed by one on

False Cusparia-bark.

Last year spurious cusparia came into the London market, and, as Mr. E. M. Holmes did not know its origin, Mr. E. W. Pollard, B.Sc., of Ryde, undertook to examine the bark. He found it to be identical with a bark previously described by the late Mr. John Barclay, and on getting a sample from him Mr. Pollard found it to be identical. His paper described the histology of the bark, which differs from that of true cusparia in respect to well-developed sclerenchyma, absence of raphides, and no special oil-cells. The chemical examination showed the presence of an alkaloid, which could not be obtained crystalline, *per se*, or in the form of cells. Fixed and volatile oils were also present. Mr. Pollard had an excellent reception.

Compound Tincture of Benzoin.

Mr. Alfred Wright, pharmaceutical chemist, of Yeovil, contributed a useful and practical paper on this preparation. In 1901 the Birmingham authorities prosecuted a local chemist, under the Sale of Food and Drugs Acts, for selling a tincture which yielded 14·7 per cent. of solids, whereas Dr. Hill, the city analyst, considered that the yield ought to be not less than 18 per cent. The Government chemists, on reference, declared that there was nothing in the tincture to show that it was not B.P. Mr. Wright has taken up the matter with a view to ascertaining the quality of a strictly normal tincture. He first ascertained the amount of soluble matter yielded by the solid ingredients of the tincture, and made eight samples of the tincture with different qualities of benzoin; and it appears that the lowest extractive (14·3 per cent.) in the preparation was obtained when crude storax and third-quality Sumatra benzoin were used. He also examined commercial tinctures, and his conclusion is that 18 per cent. of extractive should be the standard for the tincture. The communication was the means of inducing the best practical discussion during the meeting. In succession Messrs. Wippell Gadd, Rutherford Hill, F. C. J. Bird, Hutchison Thomson, H. E. Boorne, E. M.

Holmes, G. F. Merson, Claridge Druce, Charles Symes, W. F. Wells, and Watson-Will spoke on the subject. The discussion confirmed Mr. Wright's conclusions, but unearthed old and advanced one or two new points as to the ingredients and preparation of the tincture. Another long discussion followed on

The Future of Pharmacy.

Papers of an academic and controversial nature are amongst the most popular submitted to the Conference, because, while many of the members are not prepared on the spur of the moment to express an opinion upon a technical matter, there are few who are not well enough up in the everyday affairs of pharmacy to express an opinion upon its business tendencies. Mr. Leo Atkinson, in his paper entitled "The Future of Pharmacy," gave ample scope for *cacoethes loquendi*. He commenced by showing that during the past generation the practice of pharmacy has been much changed, and the advent of joint-stock companies has introduced a spirit of commercialism which is detrimental to the craft. He considered that the Pharmaceutical Society has faithfully fulfilled its contract with the State to provide the public with a body of men qualified by education and experience to fulfil the functions required by the State; but year by year there is less need of the statutory pharmaceutical skill, and the consequence is that the professional pharmacist has to branch out in several directions, such as optics, photography, and bacteriology, which may exercise his scientific skill, but are not pharmacy. Mr. Atkinson thought that owing to the attitude of the Legislature the educational equipment of the up-to-date store-chemist need not extend beyond a knowledge of keen commercial methods, the acquirements of a shopwalker, and arithmetical proficiency sufficient to supervise the mechanical till. He advised the formation by the Conference of a guild to promote the professional interests of pharmacists by combating the growing evils of commercialism and to place some bar upon infamous conduct in a professional respect. The discussion was intensely interesting, although it left things pretty much *in statu quo ante Leo* (if the ablative may be pardoned). Messrs. Peck, Kemp, Druce, Hill, Atkins, and Newsholme, and Sir Thomas Robinson spoke. The last named gave the Conference a sample of Irish eloquence and plain speaking which was well received, his idea being that some pharmacists are far too pessimistic, and if they work well they will succeed.

Balearic Botany

was the title of a paper contributed by Mr. J. W. White, F.L.S., the Chairman of the Local Committee. It described a visit recently paid to the Balearic Isles in the Mediterranean, where Mr. White did some useful botanising, and in the paper he gave the members the benefit of his experience. At this point the meeting adjourned for luncheon. After it the first subject was

Crystals in Extracts.

Mr. F. H. Alcock, in a note on this subject, informed the Conference that he has found acid phosphate of potassium in alcoholic extract of pyrethrum and acid phosphate of calcium in extract of beef. The observations of Mr. M. J. Ellwood, of Leominster, in 1870, indicated that potassium nitrate is a common form of crystallisation in extracts.

Hyoscyamus Muticus.

Dunstan and Brown reported the presence in this plant as grown in India of 0·1 per cent. of hyoscyamine, and, later, 0·59 per cent. from the stem and leaves of the plant grown in Egypt; while Dr. Gadamer obtained as much as 1·3 per cent. from Egyptian leaves. Messrs. Ransom and Henderson now reported to the Conference that they have examined the stalk, leaves, and seed-capsules of the plant, and they have obtained 0·9 per cent. from the whole plant and a little less than $\frac{1}{2}$ per cent. from the brown stalk. They added a useful therapeutic note from Dr. Shann, of Lowestoft, who finds the tincture of the Egyptian henbane a far more reliable article than that of *Hyoscyamus niger*. The principal contributor to the discussion on the paper was Mr. A. W. Gerrard, whose work on mydriatic alkaloids is well known. He remarked upon the striking fact that the price of hyoscyamine has not come down, although this new and plentiful source had become available. He recommended that *Hyoscyamus niger* should be de-officialised. The next subject was the

Separation of Strychnine and Quinine.

Messrs. E. F. Harrison and D. Gair described a process for the quantitative determination of the amount of strychnine existing in pharmaceutical and medicinal syrups along with quinine. The method depends upon the fact that Rochelle salt forms with strychnine a tartrate of the alkaloid which is less soluble in water than the tartrates of some other alkaloids. They worked with a mixture of quinine bisulphate and strychnine sulphate in proportions varying from 8—1 to 30—1, and they always obtained strychnine in amount closely similar to that introduced. After a short discussion, Mr. Harrison read a second paper by himself, on the

Volumetric Use of Fehling's Solution.

It is well known that cupric salts liberate iodine from an iodide, consequently, in estimating a reducing substance with Fehling's solution, the end-point may be determined if a few drops of a solution of potassium iodide and starch are added to the mixture under titration. This is the method suggested to Mr. Harrison by Mr. A. A. Kelly, and what a few members discussed with appreciation. Then followed a paper by Mr. H. E. Matthews, Treasurer to the Local Committee, on

Morphiometry,

wherein he contrasted the B.P. and Dieterich's methods of assaying opium, and demonstrated the superiority of the latter method in some respects. At this stage of the proceedings time was becoming very precious, and after the next paper speakers repressed themselves. We therefore have nothing to add to the bare notes on the rest of the papers, which we give in the order taken.

Ferri Arsenas

was the title of a paper by Mr. W. W. S. Nicholls, B.Sc., in which he described how this B.P. salt may be accurately estimated as regards iron and arsenic, the latter being determined by a distillation-process. He reported upon commercial samples rather adversely; but Mr. Tyrer, Mr. Harrison, and others questioned his conclusions, and an uncalled-for remark by Mr. Nicholls in reference to Professor Sydney Young brought him a severe rebuke from Mr. O. C. M. Davis.

A Concurrent Curriculum.

Mr. H. Wippell Gadd, F.C.S., of Exeter, has personal experience of the possibilities of instructing pharmaceutical apprentices in the subjects of the Minor examination while they are engaged in business, and he gave the Conference the benefit of his experience by submitting to them a synopsis of three years' study at university colleges or technical schools in the principal centres of England. Mr. Gadd is of opinion that a compulsory curriculum is not at present required by the drug-trade. The curriculum which he submits provides for ten hours a week in attending courses of instruction in chemistry, materia medica, pharmacy, physics, and botany, with practical instruction in chemistry and botany; and courses can be taken either in the daytime or evening, at a cost not greater than that for a full-time course taken subsequent to apprenticeship.

The rest of the papers were taken as read, viz.:

Chloroforms of Belladonna and Aconite.

In a very elaborate paper by Mr. Robert Wright, of Buxton, these preparations were reported upon. Squire states that the B.P.C. Formulary process for the belladonna chloroform is inferior to that given in Squire's "Companion." This observation has been confirmed by Naylor, and now by Mr. Wright. His paper gave full details of experimental work with seven methods. The same was done with aconite chloroform. He proved that while chloroform alone is a good menstruum for aconite, it is not so good for belladonna, but that a mixture of ammoniated alcohol 1 volume and chloroform 7 volumes is the best menstruum for both the drugs.

Suprarenal-gland Preparations.

Dr. J. C. McWalter described the functions of the suprarenal gland, and submitted formulas for making active medicinal preparations from the gland of the sheep and that of the cow. For a menstruum he uses in the former case a mixture of alcohol and glycerin and water, with 2 per cent. of acetic acid, and in the latter case a similar mixture of alcohol, glycerin, and water, with about 10 per cent. of boric acid.

The Refractive Index of Essential Oils.

Mr. Ernest J. Parry, B.Sc., called the attention of the Conference to the importance of determining the refractive index of essential oils. It will be remembered that the late Dr. John H. Gladstone many years ago used the refractometer with excellent results in this regard, but it is not universally applicable, as oils of lemon and orange do not under ordinary conditions yield good factors. It is, however, serviceable for many oils, including otto of rose, and Mr. Parry gave figures for the latter.

Lettuce-leaves.

Some years ago Mr. T. S. Dymond was made the first research fellow of the Pharmaceutical Society for discovering hyoscyamine in lettuce-leaves. Messrs. J. O. Braithwaite and H. E. Stevenson now report that there is none in them. Mr. Dymond's results were so conclusive that a fresh investigation seems to us necessary.

Agricultural and Horticultural Poisons.

In a paper on this subject, Mr. E. M. Holmes, apart from dealing with the Poisons Committee's report and Ballikinrain ant-killer, gave useful information about non-poisonous insecticides, which chemists should turn to profitable account.

Next Year

the Conference will meet in Sheffield, again under the presidency of Mr. Idris.

Medicine-stamp Duty.

The following circular letter has been issued by the Board of Inland Revenue. It differs in several respects from the letter which we published on June 6. We have italicised parts which were not in the letter dated June 3:

Inland Revenue,
Somerset House, W.C.,
July, 1903.

Sir,—The Board of Inland Revenue, having had under careful consideration the decisions of the High Court in the cases of Ransom *v.* Sanguinetti and Farmer *v.* Glyn-Jones, desire me to take this opportunity of making known their views in regard to the changes thereby effected.

Having regard to the decision in the latter case, the Board have decided to regard as falling within the special exemption relied upon by the respondent medicines composed of drugs the denominations, properties, qualities, virtues, and efficacies of which are known, admitted, and approved, and which are sold by a duly qualified chemist and druggist, provided that either—

(1) *The formula of the preparation is stated*; or

(2) That the medicine is prepared in accordance with a formula in the British Pharmacopœia or other well-known book of reference, and this fact is stated *or otherwise indicated on the label.*

It will be observed that the exemption does not apply to sales by limited companies or by unqualified persons.

The decision in the case of Ransom *v.* Sanguinetti leaves the Board no alternative but to regard such titles as "Cough mixture" or "Liver-pills" as *per se* involving liability. If, however, such medicines fall within the scope of the exemption above mentioned, and one or other of the conditions stated above is satisfied, they do not require to be stamped, if sold by a duly qualified chemist or druggist. It must, however, be distinctly understood that where such words as "cough-mixture" or "liver-pills" are use without a statement or indication of the *formula* from which they are prepared liability to duty is thereby incurred.

I am, Sir,
Your obedient servant,
E. E. Stoodley,
Secretary.

We recommend our readers to compare the foregoing with the letter in our issue of June 6. Practically all the points in the present letter have been embodied in subsequent correspondence.

"Hazeline" and "Kepler" Preparations.

We notice that some remarks were made at the London Chemists' Association (Northern Branch) regarding the liability of these well-known preparations, and as the publication of them may lead some of our readers in Great Britain to hesitate about selling them unstamped, it is but fair that we should give a word of advice. We have examined a bottle of "Hazeline" brand distilled extract of witch-hazel, and find that there is nothing on it whatever to require a stamp. The preparation is not recommended for any ailment, and the trade-mark "Hazeline" is appropriated to a class of preparations, and no longer (as it used to be) to one article. The same remark applies to "Kepler" preparations, so that the manufacturers are within the ruling as to appropriated trade-marks, which the Board of Inland Revenue have long recognised. There are scores of articles put up by retail and wholesale chemists which are similarly treated.

A Special Chemist's Formulary.

We are somewhat amused by the painful efforts which some pharmacists are making to get the Pharmaceutical Council to father a recipe-book of cough-mixtures, liver-pills, and things of that sort. The fact that "Pharmaceutical Formulas" deals very well with such matters, and has in the short period of five years become a well-known book of reference in the British Empire, may or may not have something to do with it. No sane person would ever dream that "Pharmaceutical Formulas" does not come within the terms of the Board of Inland Revenue's letter published in our issue of June 6. But it is now definitely asserted that the Board will only recognise a book which is published by some such body as the Pharmaceutical Society. Not a scrap of evidence has been produced to substantiate that assertion, and we may point out that it is sufficiently contradicted by the Board's recognition of The Chemists' and Druggists' Diary as coming within the terms of their letter (see *C. & D.*, July 25, page 139). It is difficult to understand how Mr. Humphrey, in selecting information from that page respecting full quantities on labels, failed to appreciate the fact that the Board's letter as to our Diary knocks the bottom out of his theory regarding which books will be recognised and which not. It is already well known to our readers that early in June a *C. & D.* correspondent suggested that we should publish formulas for "known, admitted, and approved" remedies. We at once acted on the suggestion, and have since obtained a very large number of formulas, which we propose to select from and print in the next issue of The Chemists' and Druggists' Diary. Formulas for non-secret and non-proprietary medicines to include in this collection may be sent to us before the end of August. We have no doubt that the collection will entirely meet the wants of the trade.

New Companies & Company News.

Alpha Chemical Company (Limited). — Registered in Guernsey.—Capital 100,000*l.*, in 1*l.* shares. Objects: To acquire from John Keefe and R. Kenneth the benefit of certain inventions relating to the manufacture and treatment of a paper-makers' composition, &c., for wool-scouring, the manufacture of dry soaps, cleansing-fluids, disinfectants, &c The first subscribers are: G. S. Stenning, 17 Shaftesbury Avenue, W.; R. Kenneth, 42 St. Dunstan's Road, E., manufacturing chemist; G. Cossington, 7 Marshgate Lane, Stratford, E., engineer; H. Ferry, 153 Shaftesbury Avenne, W.C., electrical engineer; C. Kitts, Smith Street, Guernsey; L. Lazarus, Smith Street, Guernsey, clerk; and F. I. Brownsey, 43 High Street, Guernsey. The first directors are R. Kenneth and J. Keefe, both of whom may hold office for life.

Texas Medicine Company (Limited).—Capital 1,500*l.*, in 1,250 preference shares of 1*l.* each and 5,000 deferred shares of 1*s.* each. Objects: To carry on the business of chemists, druggists, herbalists, drysalters, and colourmen, makers of and dealers in proprietary articles, and of electrical, chemical, photographic, surgical, and scientific apparatus and materials, &c. The first subscribers are: D. J. Carapata, 23 Westbourne Square, Hyde Park, W., gentleman; R. G. Locke, 53 Victoria Street, S.W., accountant; G. Evanovitch, 29 St. James's Square, Holland Park, W., manager; J. Petit, 7 Westmoreland Place, S.W., printer; C. Andrew, 24 Binfield Road, S.W., merchant; C. E. Toase, 74 Constantine Road, N.W., accountant; T. Borras, 147 Tachbrook Street, S.W., mortgage broker; and A. Clausen, 25 Victoria Street, S.W., accountant. No initial public issue. G. Evanovitch is sole director, and may hold office while he or his wife hold one-tenth of the deferred shares. Remuneration, 6*l.* per week. Registered office, 31 Museum Street, Bloomsbury, W.C.

Imperial Quinine Company (Limited).—Capital 50,000*l.*, in 1*l.* shares (46,500 "A" and 3,500 "B"). Objects: To carry on the business of chemists, druggists, drysalters, importers and manufacturers of medicinal, chemical, pharmaceutical, and other preparations and articles, makers of photographic, electrical, surgical, and scientific apparatus and materials, and proprietary articles, &c, and to enter into an agreement with T. Ruth, G. Johnston, F. Simeons, and G. M. Beer. No shares, except those allotted under the said agreement and those taken by the signatories, are to be issued without the authority of general meeting. The first subscribers are: T. Ruth, 356 Green Lanes, N., manufacturer; F. Simeons, Woodside, Avenue Road, Highgate, N., merchant; G. Johnston, 7 Albemarle Street, W., gentleman; T. M. Simeons, 28 Pembury Avenue, Tottenham, N., manufacturer; G. M. Beer, 98 Brondesbury Road, N.W., manufacturer; H. T. Cates, The Hollies, Langley Park, Sutton, gentleman; and R. Hargreaves, 16 Connaught Street, W., gentleman. No initial public issue. The first directors are G. M. Beer and T. Ruth; qualification, 300*l.* shares, stock, debentures, or debenture stock.

Collins' Eucalypti Remedy Company (Limited).—Capital 3,000*l.* in 1*l.* shares (2,000 preference and 1,000 founders'). Objects: To acquire the business carried on by A. F. Collins at 31-3 Newington Causeway, S.E., and in Australia and America, and to carry on the business of distillers and manufacturers of eucalyptus and other essential oils, extracts, and essences; chemists, druggists, dentists, opticians, drysalters; manufacturers of optical, photographic, surgical, and scientific apparatus and materials; patent-medicine dealers, &c. The first subscribers are: A. F. Collins, 31-3 Newington Causeway, S.E., manufacturer; Mrs. E. Collins, 31-3 Newington Causeway, S.E.; T. J. L. Sprenger, 101 Clarence Road, Wimbledon, accountant; W. G. Train, 136 Prospect Road, Woodford Green, Essex, wharf representative; W. H. Collins, 31-3 Newington Causeway, S.E., clerk; T. G. Gardner, 311 Gray's Inn Road, W.C., traveller; and T. Rawson, 12 Netherthorpe Place, Sheffield, manager. Minimum cash subscription 50 shares. The number of directors is to be three, with one extra for every 5,000*l.* increase of capital up to 23,000*l.* A. F. Collins is the permanent governing director. Qualification 25 founders' or 100 preference shares.

Baird & Tatlock (London) (Limited).—Capital 40,000*l.*, in 1*l.* shares. Objects: To adopt an agreement with H. H. Baird for the acquisition of the business of a laboratory furnisher, manufacturer of and dealer in chemicals, drugs, and reagents, analytical chemist, and scientific-instrument maker now carried on by him at 14 Cross Street, Hatton Garden, as "Baird & Tatlock (London)," and to carry on the same and the business of chemists, druggists, manufacturers of and dealers in all kinds of salts acids, alkalies, drugs, medicines, medicaments, herbs and pharmaceutical, chemical and surgical materials and appliances, manufacturers and vendors of proprietary articles, scents, pigments, and toilet-requisites, dealers in photographic materials, makers of chemical, physical, bacteriological, physiological, surgical and optical instruments, &c. The first subscribers are: H. H. Baird, 39 Victoria Road, W., scientific-instrument maker; E. Crailsheim, 41 Cromwell Road, S.W., gentleman; S. A. Child, The Crossways, Cobham, Surrey, solicitor; F. W. Crailsheim, 4 Serjeants' Inn, E.C., solicitor; A. M. Selly, 32 Weymouth Street, W., gentleman; H. S. Salter, Rye House, Walton-on-Thames, solicitor; and W. P. Tomes, 17 Devonshire Chambers, Bishopsgate Street Without, E.C., chartered accountant. No initial public issue. H. H. Baird is governing director for life, with power to appoint other directors. Special qualification for governing director, one-third of issued capital. Remuneration as fixed by the company. Registered office, 14 Cross Street, Hatton Garden, E.C.

United Alkali Company (Limited).—The directors have declared an interim dividend on the preference shares at the rate of 7 per cent. per annum.

Spratt's Patent (Limited).—The directors have declared an interim dividend for the six months ended June 30 on the ordinary shares of 6*s.* per share.

"Sanitas" Company (Limited).—The directors have declared an interim dividend at the rate of 5 per cent. per annum for the six months ended 30 June last.

Price's Patent Candle Company (Limited).—The directors announce for the six months ended June 30 last a profit of about 34,200*l.*, and they recommend a dividend of 15*s.* per share.

Samuel Meggitt & Sons (Limited).—Mr. Justice Byrne has given consent to a scheme of arrangement in respect to this company of chemical-manufacturers, fixing the capital at 75,000*l.*—90,000 preference and 45,000 ordinary; 30,000*l.* is to be raised on debentures; the old debenture stock are to be paid off in full; while the unsecured creditors were to take 10*s.* in the pound in cash and 10*s.* in preference shares in the new company.

A. J. White (Limited).—The report for the year ended March 31 states that net profits amount to 65,691*l.* The directors have, however, slightly increased their advertising in the United Kingdom, Australia, South Africa, and the United States. In view of this they propose to reserve 10,000*l.* in hand (in addition to the general reserve carried forward) in such a way as to be available either for the extension of future advertising in the old fields of operation or for the development of new territory abroad, as and when the board think that it can be most advantageously expended. After paying the preference dividend, amounting to 30,000*l.*, and bringing forward the sum of 11,065*l.* standing to the credit of last year's profit-and-loss account, there remains a balance of 46,757*l.* The directors propose a dividend of 5 per cent. on the ordinary shares, providing the special fund of 10,000*l.* above-mentioned, and carrying forward the balance of 11,757*l.*

J. Llewellyn & Co. (Limited), Shanghai.—The report for the year ending December 31, 1902, states: "The profit-and-loss account shows a credit balance of $10,289, including $647 brought forward from 1901 account. The result is better than in the preceding year, when a dividend of 4 per cent. was paid, but the directors now recommend that the whole balance at the credit of profit-and-loss account be brought forward. The claim on the Chinese Government now stands at $6,052, which is $637 less than in the previous year." At the meeting Mr. H. J. Such (Chairman) presided, and the report was adopted. The meeting then resolved itself into an extraordinary meeting for the purpose of passing the following resolution, which was carried:

> That the capital of the company be reduced from Mex. $120,000, divided into 1,200 shares of $100 each, into Mex. $72,000 divided into 1,200 shares of Mex. $60 each, and that such reduction be effected by cancelling capital which has been lost or unrepresented by available amounts, and by reducing the nominal amount of all the shares in the company from Mex. $100 to Mex. $60 per share.

Births.

Tweedy.—On July 20, at 63 Maryland Road, Bowes Park, N., the wife of S. C. G. Tweedy, chemist and druggist, of St. Bartholomew's Hospital, of a son.

Walton.—On July 16, the wife of S A. Walton, chemist and druggist, 190 Broadhurst Gardens, Hampstead, N., of a daughter.

Deaths.

Allen.—Information was received in London on Tuesday that Mr. Malcolm W. Allen, the eldest son of Mr. William Clarkson Allen (Messrs Stafford Allen & Sons, Limited), had been missing for a day in Skye, and on Wednesday his body was found on a hill near Sligichan, where he had been spending a holiday. No particulars have been obtained of the sad tragedy, but it is supposed that Mr. Allen, who was a keen photographer and had been doing a good deal of camera-work, had endeavoured to save his camera, when the tripod slipped, and so fallen from a rocky cliff upon his head. This occurred on Monday, and death was due to fracture of the skull. Last week it was our regretful duty to report the death of Mr. John Barclay, who was well known to wholesale and retail druggists throughout the country, and it has since been ascertained that he fell from a precipice upon his head. It is a remarkable coincidence that we have again to report the death of one of our younger race of chemists who was equally well known to manufacturers and wholesalers. Mr. Allen was, however, not unknown to retail pharmacists, owing to his occasional attendance at the meetings of the British Pharmaceutical Conference; and it may be remembered that two years ago, in conjunction with Mr. Brewis, he read a paper dealing with essential oils to the Pharmaceutical Society in Bloomsbury Square. Mr. Allen had almost completed his thirty-first year. He was educated at the Friends School at York, and between eighteen and nineteen entered the business of Messrs. Stafford Allen & Sons. In the earlier years there he went through a course of instruction in the Chemical Section of the Finsbury College, and had practical experience in the internal management of the business. He was admitted a partner in 1896, and when the firm was incorporated became a director. His particular sphere of work was the superintendence of the distilling and manufacturing department of the firm's establishment in Cowper Street, Finsbury. He was a courteous and unassuming gentleman, and was highly respected by all who came in contact with him in business. His father left for Skye on Tuesday evening, and by the time he reached Sligichan the search party had found the body and the cause of death had been determined.

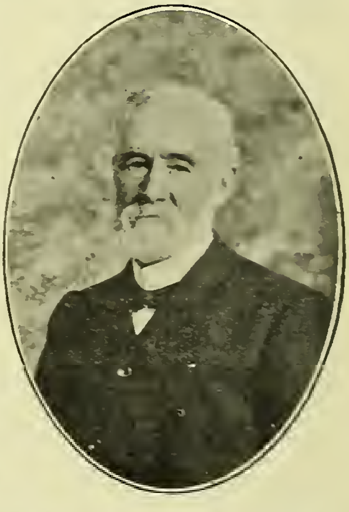
Casely.—At Cheshunt, on July 20, Mr. Thomas Casely, chemist and druggist, formerly of Brighton, aged fifty-three. Mr. Casely had not been ailing long, but a few days before his death it was discovered that he had cancer of the stomach.

Foster.—On July 28, at Cullompton, Devon, Mr. Joseph Foster, chemist and druggist, aged seventy-six. Mr. Foster was one of the first to start the Volunteer Force in Devon.

Hulme.—At Bury, on July 23, Mr. Thomas Hulme, chemist and druggist, aged forty-seven.

Paige.—On July 27, Mr. John Gillard Paige, chemist and druggist, South Street, South Molton, from blood-poisoning.

Bush.—We regret to have to announce the tragic death of William Ernest, Baron de Bush, managing director of W. J. Bush & Co. (Limited). On the evening of July 23 Baron de Bush was travelling from Euston to Scotland with the Baroness de Bush and a maidservant. Just after passing Bletchley, the Baroness left her husband smoking in a first-class corridor-compartment. When nearing Northampton she returned, but found that the Baron had disappeared. The carriage-door was open, and on an alarm being given the line was searched, and Baron de Bush was found on the line near Banbury Lane crossing, with his skull badly fractured. He was removed at once to the Northampton General Hospital, but died soon after being admitted. An inquiry was opened on July 25 at Northampton, when Mr. Alexander Bush, of 23 Marlborough Place, St. John's Wood, London, N.W., identified the deceased as his brother. No further evidence was taken, and the inquiry was adjourned until Friday, July 31. The funeral of the deceased took place at Kensal Green Cemetery on Wednesday afternoon last. Baron de Bush was born on October 29, 1860 being the eldest son of the late Mr. William J. Bush, who founded the business of W. J. Bush & Co. (Limited). He, was educated with a view to entering the business, of which he became the head on his father's death, and through his energetic personality he developed it greatly. As a young man he took a keen interest in commercial matters generally, especially in exhibitions which were likely to foster British industries, and served on the juries of the Antwerp (1885), Brussels (1888), Edinburgh (1890), and Brussels (1897) Exhibitions. He was President of the Chemical Section and British Representative in the Supreme Jury of the Brussels Exhibition, 1888, and his services there so pleased the Duke of Saxe-Coburg and Gotha that he in 1889 created him a Baron, and the late Queen Victoria in 1896 granted him a Royal licence to use the title in this country.



Burnett.—The death occurred on Tuesday, July 21, of Mr. Robert Burnett, pharmaceutical chemist and registered dentist, 62 Broad Street, Fraserburgh. Mr. Burnett, who was seventy-five years of age, was taken with a paralytic-seizure a fortnight ago, and although he rallied somewhat and gave hope that he might ultimately recover, this hope was not realised, and he died as above stated. He served his pupilage with the late Alex. C. Grieve, M.R.C.S.Eng., and thereafter studied at Bloomsbury Square and simultaneously took the dental course, and finally registered as a dental practitioner. He commenced business as a pharmaceutical chemist over fifty years ago in his native town of Fraserburgh, and was held in highest esteem for his business and scientific attainments. As a trainer of apprentices Mr. Burnett was singularly successful, and many chemists all over the world owe much to his inspiring influence. Mr. G. F. Merson, F.C.S., Secretary of the Federation of Local Pharmaceutical Associations, was one of his pupils. Mr. Burnett is survived by Mrs. Burnett and three sons and four daughters. His eldest son, Dr. John D. Burnett, of Watford, served his apprenticeship to the drug-trade, and afterwards studied medicine at Aberdeen University, where he graduated. The youngest son, Douglas, is at present in his father's pharmacy.

OFFICERS.

President.—T. H. Williams Idris, L.C.C., J.P., F.C.S., London.

Vice-Presidents.—G. T. W. Newsholme, F.C.S., Sheffield; G. D. Beggs, M.P.S.I., Dalkey, co. Dublin; Peter Boa, Edinburgh; W. A. H. Naylor, F.I.C., F.C.S., London; J. W. White, F.L.S., Bristol.

Honorary Treasurer.—J. C. Umney, F.C.S., London.

Honorary General Secretaries.—F. Ransom, F.C.S., Hitchin; E. Saville Peck, M.A., Cambridge.

Honorary Local Secretary.—H. E. Boorne, Ph.C., Bristol.

"A THING well begun is half done," they say, and Bristol is entitled to some credit for originality in the opening of Conference proceedings. Monday night was inclined to be miserable. There was in the air that raw element which is more native to the Forth and Clyde than characteristic of the Severn, and those who were not staying in the Royal Hotel, but came thither to be received by the Lord Mayor, felt just a bit chilled. Half an hour in the reception-rooms of the hotel sufficed to give a cheerier aspect to things; indeed, it needed only Sir Robert Symes's hearty hand-grip to make one feel at home. He, as the Lord Mayor of Bristol, gave the party, and Lady Symes was with him receiving. Mr. and Mrs. Idris stood beside them, and they were supported by Mr. and Mrs. Atkins. Mr. and Mrs. Beggs were not far away, for, whether by accident or design, Bristol managed in this, the fortieth year of the Conference's history, to associate with it in the reception the two national Pharmaceutical Societies. So there was as complete fraternity as there should be in this reunion which brings together the pharmacists of the Empire. We must not omit to say that Mr. J. W. White, Chairman of the Local Committee, was one of the reception party, and he gave each one a hearty welcome as he or she passed to join the throng of old familiar faces.

As one mixed in the crush there was many a hand-shake. Of past Presidents we noticed Dr. Symes (with Mrs. Symes), Mr. E. M. Holmes and Mr. Claridge Druce. Sir Thomas and Lady Robinson, and Mr. W. F. Wells completed the Dublin contingent. Edinburgh, Liverpool, Plymouth, Manchester, Glasgow, and Dundee were strongly represented. Pharmaceutical councillors were fairly numerous, amongst them Mr. Newsholme, who had come with Mrs. Newsholme, Mr. Fox, Mr. Antcliffe, and other Sheffielders, to give the Conference an invitation to the city of steel. Mr. Bremridge and Mr. Glyn-Jones, with Mrs. Glyn-Jones, were amongst the many Bloomsbury folk. London had sent a strong contingent. A mere list cannot do justice to them, since the ladies excelled themselves in grace of drapery. Mr. and Mrs. John C. Umney, Mr. and Mrs. F. Ransom, Mr. and Mrs. E. White, Mr. F. C. J. Bird and Miss Bird, Mr. and Mrs. Watson Will, Mr. and Mrs. Leo Atkinson, and Mr. I. Bourdas and Miss Bourdas are a few who were there. The gathering seemed to number about three hundred, if not more.

The programme did not altogether transpire at first. One had a vague idea that there was to be a reception, dance, and concert. The uncertainty made it all the more pleasing. When the Lord Mayor, about 8.20, mounted a chair, and the gay throng circled round him, there was a touch of the homely in the proceeding. His object was merely to give a hearty welcome to Bristol. Sir Robert wore Court dress, and his chain of office. He spoke kindly of the importance of the pharmaceutical calling, and had not gone far before the inevitable slip came about the British Pharmaceutical Society, but his remark about the Irish Society made one wonder whether there was any confusion in his mind. There was none, at all events, about his declaration that pharmaceutical chemists rarely make a mistake, and his words as to the pleasures of the meeting lacked no heartiness. His speech was acknowledged by Mr. Idris, President of the Conference, who gave the members a foretaste of his capacity for saying the right thing gracefully, and he referred with intimate knowledge to the Lord Mayor's duties. Sir Robert Symes has beaten Sir Richard Whittington, who was thrice Lord Mayor of London; Sir Robert has been five times Lord Mayor of Bristol. Here Mr. Idris was corrected by his Lordship—"Four times Mayor and once Lord Mayor." So Mr. Idris corrected himself, adding that he hoped Sir Robert would live to justify his first expression, "Five times Lord Mayor of Bristol." Mr. Atkins was then called upon, and such cheering there was when he mounted the chair! No question of his popularity. His eloquent tongue again served him well, and what he said was endorsed by Mr. Beggs. Speaking for Ireland, Mr. Beggs said they had given the King a royal welcome to Dublin; Bristol's welcome was just as good. He said "Glasgow," but that was regarded as a flash of Irish wit.

The Right Hon. the Lord Mayor, Alderman Sir Robert Henry Symes.

After the Lord Mayor had acknowledged the thanks heartily given, conversation was resumed, and many slipped into the magnificent vestibule, where supper-tables were set with light refreshments, and the more juvenile members of the local committee began to distribute dance-programmes. The programme of music had by this time commenced. The Strad orchestral band, under the direction of Mr. G. A. Webb, gave the major portion of it; but there were songs, most exquisitely rendered by Miss Edith Evans and Miss E. Chambers, and a violin obbligato by Miss Violet Bryant. Dancing commenced shortly after nine o'clock, and at a quarter to ten Mr. White took the chair at a smoking-concert.

Opening Session.

TUESDAY, JULY 28.

Ten o' clock was the hour for opening the proceedings, and the President was there well before that hour, also Professor C. Lloyd Morgan, Principal of the University College, and Dr. Sydney Young, F.R.S., who was down to read the first paper. It was 10.8 when the President called the meeting to order, and then the brilliantly lighted hall of the College contained fully a hundred members, about a third of the number being ladies. On the platform Professor Lloyd Morgan sat on the President's left, being supported by Mr. S. R. Atkins and Dr. Chas. Symes (past Presidents); Mr. F. Ransom (Secretary), Mr. John C. Umney (Treasurer), Mr. E. Saville Peck (Secretary), and Mr. G. D. Beggs (President of the Pharmaceutical Society of Ireland) being on the right. The following was the

Order of Business.

Address of Welcome by Professor C. Lloyd Morgan, Principal of University College, Bristol.
President's Address.
Reception of Delegates.
Report of Executive Committee.
Financial Statement.
Report of Treasurer of the "Bell and Hills" Library Fund.
Report of Formulary Committee, by N. H. Martin, F.L.S.
Report by Dr. Power of his Visit as Delegate to the International Congress of Applied Chemistry.
Reading of Papers, and Discussions thereon.

Official Welcome.

Professor Lloyd Morgan said: Mr. President, ladies, and gentlemen,—I have the honour to say a few words of welcome to you to the University College, Bristol. The words shall be few, because it has been well said that neither welcomes nor partings should be unduly prolonged. I can only say that when I had the honour of suggesting to the Council of University College that your meetings should be held in this building, that suggestion was at once adopted and carried unanimously, for it was felt that University

Professor C. Lloyd Morgan, LL.D., F.R.S.

College is distinctly a fit and proper place in which to hold such a meeting as this. It seems to me University College is a fit and proper place in which you should be welcomed, because your work is specially characterised by exactness, and we in University College, at any rate, hold up the ideal of exact and careful work. (Cheers.) We endeavour, as you endeavour, to promote efficiency and elegance. I owe these two terms to a member of your profession with whom I travelled across the Atlantic. He came from the other side, and he maintained that the characteristic of his work—professional work—in recent years had been a marked increase in efficiency and elegance. I asked him exactly in what respects he would lay stress upon these two points. "Wal," he said, "the time has gone by when we used just to put something in which affected the whole constitution and just worried around, and perhaps did good in the end—(laughter and applause)—perhaps not. But it is not so with us now, sir. What we aim at is something that will stick strictly to business, and not go fooling around the constitution, and that, sir, is efficiency." (Laughter and applause.) "Yes," I said, "and elegance?" "Wal, sir, when I was a boy it was a real terror to have to take any medicine and drugs. We have changed all that now. Now, sir, it has added a new joy to existence." (Laughter.) Well, you are cultivating efficiency and elegance; and we in University College, in our department, endeavour to cultivate efficiency and elegance. Everyone can do this. Do not these two, seriously regarded, pretty well touch the keynote of efficient, elegant, and exact work? Must not good work stick strictly to business, and not go fooling around the constitution?—(laughter and applause)—and is not elegant work just that which gets rid of the unnecessary redundancies which also stick strictly to business but are regarded, perhaps, rather from the point of view of the æsthetic side than of the intellectual side of our nature? The two combined are what might be regarded, perhaps, as forming the tonic and dominant of good strong exact work. And just as it is our object to cultivate these two excellencies, for that reason I think I may claim that University College is a fit and proper place in which you should meet. That your Conference may be a thorough success is not only my hope and belief, but my confident anticipation. (Applause.) You have a large meeting here, and you have a very interesting table of agenda. I hope you will have some interesting excursions, that you will feel that Bristol has given you a welcome, and that you have enjoyed your time here and have profited by your visit to Bristol. (Applause.) Without occupying your time any further, I beg most heartily to welcome you to the University College, Bristol. (Applause.)

Thanks Returned.

The **President**, in thanking Professor Lloyd Morgan, said: It is my duty to thank you very heartily for the cordial welcome you have given us and for the kindly appreciative remarks you have made respecting our calling. We cannot have a more cordial or more interesting welcome than you have given us. (Applause.) I am sure also that we cannot have better premises, more suitable, fit premises to meet in than these which you have given us the opportunity of using. As a reader of some things that you have written, Mr. Principal, I have often wondered whether the pleasure afforded your readers has been similarly experienced by those who have been instructed by word of mouth, and I can fully realise that the latter are as much favoured as those who were instructed by reading your books. No additional words of mine would further express the sincerity of our thanks to you and the pleasure we have derived from being received by you. (Applause.) To me it is an added pleasure to know that you are a native of the big city of my adoption. For the very kind manner in which you have received us we tender you our most hearty thanks. (Applause.)

Mr. **Atkins** (President of the Pharmaceutical Society) was called upon to add a few words, and he said: I think this is a work of supererogation to ask me to say anything further than you, Mr. President, have so well already expressed in our thanks to the Principal for his very gracious lending of these premises for our use during these meetings, and for the very thoughtful—I use the word advisedly—the most thoughtful address he has given this morning. I desire to associate myself with you in thanking the Principal for the reception and welcome. We had last evening a welcome from the municipality of this great city, and a very cordial welcome it was from the Lord Mayor. May I say this morning we have received a very hearty welcome from the intellectual—I do not mean to say the other side is not intellectual—but strictly from the intellectual or educational side of this great city's work? We follow it at a distance. We know what this great city is doing in the way of educational work, and I hope, I believe, we are entirely in sympathy with this work. (Applause.) Mr. Principal, it is a great thing that a society, represented as this Society is by an organisation—the British Pharmaceutical Conference—should take due note of this. We are, I may say, two distinct bodies. There are two Richmonds in the field to-day. I yield to my friend the President, of course, in every function connected with this movement; but we desire more and more to associate ourselves in the educational work of the country with the Universities—I mean, as a society we do. We all send—and, I trust, we shall send—from the great towns and cities of this country, in which great Universities are rising—we shall send our sons and daughters to receive their scientific training there, and I am sure of this, that if we send them, you, Mr. Principal, and the sister Universities will return them to us highly trained and highly cultured. (Applause.)

At 10.23 Mr. **Idris** rose to deliver his presidential address. He commenced by addressing "the Presidents of the Pharmaceutical Societies, Professor Lloyd Morgan, ladies, and gentlemen." Mr. Idris skipped parts of the address, giving, *e.g.*, a *precis* of criminal poisoning-cases and the fatalities in dispensing. The passages dealing with the latter were vociferously applauded. Mr. Idris got through his address by 11.10 and on page 221 we give the speeches which followed, as well as a report of the subsequent proceedings.

Local Secretary's Announcements.

There is usually a great exodus after the President's address, and that did not fail on this occasion; but before it commenced the **Local Secretary** (Mr. H. E. Boorne) had an opportunity of making several announcements. On ascending the platform, Mr. Boorne got hearty acclamation, and he proceeded to confide to members some details about arrangements which had been settled since the pink circular went out. We may also state here that every member of the Local Committee worked hard all the time to make the Conference meeting a success, so far as the social side of it was concerned; indeed, one of them (Mr. H. E. Matthews) was so taken up with infinity of detail the first day that when called upon to read his paper on morphinometry he was elsewhere.

Mr. H. E. Boorne.

Some Pictures

are inserted in the President's address (pp. 212–221) which do not, strictly speaking, belong to it. On page 213 is a view of the celebrated Roman baths at Bath, almost as they were when the Romans used them in the first centuries of this era. The view on page 214 shows another bit visited on Tuesday, while on page 216 are pictures of the college where the meetings were held, and on page 218 one of Tintern Abbey, visited on Thursday.

PRESIDENTIAL ADDRESS.

The Pleasures and Profits of Pharmacy, with some Notes on Essential Oils, and Observations on the Sale and Dispensing of Poisons having Particular Reference to the need of separating Prescribing from Dispensing.

I am proud to have the honour of presiding over this Conference on this, its second visit to Bristol, after an interval of twenty-eight years, when Mr. T. B. Groves presided over a meeting in this city, a city which by me, during my earlier years as a pharmacist, was regarded as the capital of the West, which title it may justly claim. When I look through the list of my predecessors in this position, I am forcibly impressed with the responsibility that rests on me, and of the necessity for me to ask for your indulgence and for your assistance in sustaining me in my attempt to do my duty. Three of my predecessors have been Fellows of the Royal Society, and all the previous occupants of this office have been men of distinguished ability and scientists of no mean order. I cannot hope to approach the scientific address of my immediate predecessor, nor the able addresses of those who have interested you in former years, but I can ask you to join with me in being thankful that our lives and theirs have been bound up with pharmacy. These men's lives remind us of

The Possibilities of our Calling.

It is obvious that an occupation so interesting as ours, involving manual and mental training and the pursuit of learning of so wide a range, must have inherent possibilities of an extensive order, and that no business can be more compatible with intellectual culture. In former days our calling was almost the only avenue to scientific chemistry, and in our own day no inconsiderable accession has been made to chemists of the first rank by students of pharmacy. Although pharmaceutical students are too frequently satisfied with only getting up the chemistry necessary for passing the qualifying examination, and place no great store on the possibilities arising from what they have acquired, there are abundant examples which prove that the possibilities are great, and that the possibilities increase with every extension of knowledge of the science. It is said that opportunities occur exactly in proportion to the ability to take advantage of them: this is probably true. It is also maintained that ability creates the opportunity: this is probably true, too, as it is certain that ability points out the road to opportunity. No matter how small or how great the knowledge, opportunities for utilising it in the service of our fellow-beings, and to our own advantage, will certainly occur. It is well known to everybody from personal experience that opportunities for using knowledge always occur in a much greater ratio than the knowledge available, and, further, that in almost every life opportunities occur for utilising all the knowledge that has been gained.

Three pharmacists whom I and most of you had the pleasure of knowing (who have passed away since our last meeting) may be mentioned as illustrations—our valued colleague, Frederick Baden Benger (one of my predecessors in this chair, who rendered important services before that time as Secretary of this Conference), John Robbins, and Gustav Mellin. These three men all made real and important improvements in articles of common use through applying science to their production, thus rendering real public service and gaining for themselves large financial rewards. I had the pleasure of knowing Mr. Robbins intimately, and from him and from the late Sir B. W. Richardson I had many interesting particulars concerning Mr. Robbins's first step on Fortune's ladder. Very briefly stated, it happened in this way. Sir Benjamin Ward Richardson was preparing a lecture to be delivered at the Royal Institution, and wished to procure some peroxide of hydrogen for one of his illustrations. He tried several chemists, but failed to obtain as strong a preparation as Thenard had previously obtained. Sir Benjamin's difficulty came to the ear of Mr. Robbins one night; Mr. Robbins stayed up nearly all that night, and finally succeeded in producing the article of the required strength. The next night, about ten o'clock, after the shop was closed, he took his bottle of peroxide to Sir Benjamin's house, and after some difficulty obtained an interview. Sir Benjamin was engaged in his laboratory repeating unsuccessful attempts to produce the article, and on testing the contents of Mr. Robbins's small bottle was delighted to find it to be just what he required. "You must let me have a couple of pints of this," said the scientist. "That is not possible," said Robbins. "I cannot prepare it at my employer's; I am an assistant to Mr. Garden." "Then come to my laboratory," said Sir Benjamin. So Robbins obtained leave of absence, and made the peroxide in Sir Benjamin's house. In giving his lecture, Sir Benjamin acknowledged his indebtedness to the young chemist's assistant. Many uses for the preparation were speedily found, and Mr. Robbins was quickly on the road to fortune, although when he worked at it all night he did it without the slightest idea of any pecuniary result, but simply with a desire to overcome a chemical difficulty. This also illustrates the delight that comes from

Taking Pleasure in one's Business.

Some form of excitement, some hobby, is, I believe, a necessity of life. "Happy is the man that findeth wisdom and the man that getteth understanding." "Her ways are ways of pleasantness, and all her paths are peace." In our calling we are fortunate in being able to connect our business with the delights of the microscope and the spectroscope, and with almost every branch of natural science. The reading of our pharmaceutical and scientific journals will often reveal exquisite possibilities to a thoughtful and well-informed reader, even if we imagine possibilities that do not exist. Still, if we err at all, it is better to err on the side of dreaming too much rather than too little. In my experience it may be said of the chemist's shop-parlour—

> Strange things pass nightly in this little room,
> All dreary as it looks by light of day;
> Enchantment reigns here when at evening play
> Red fire-light glimpses through the pallid gloom.

But it is not only in the library, in the home, and in the shop that scientific studies connected with our business yield pleasure, but untold delight is the result when we wander abroad. Here I should like to quote from Hudson and Gosse's beautiful work on the *Rotifera*, especially as it refers to this delightful part of the country:

> On the Somersetshire side of the Avon, and not far from Clifton, is a little combe, at the bottom of which lies an old fish-pond. It is a true silent pond, and without a sign of life. . . . But if, retaining sense and sight, we could shrink into living atoms and plunge under the water, of what a world of wonders should we then form a part! We should find this fairy kingdom peopled with the strangest creatures—creatures that swim with their hair, that have ruby eyes blazing deep in their necks, with telescopic limbs that are now withdrawn wholly within their bodies, and now stretched out to many times their own length. Here are some riding at anchor, moored by delicate threads spun out from their toes; and there are others flashing by in glass armour, bristling with sharp spikes or ornamented with bosses and flowing curves; while fastened to a green stem is an animal convolvulus that, by some invisible power, draws a never-ceasing stream of victims into its gaping cup, and tears them to death with hooked jaws deep down within its body. Close by it, on the same stem, is something that looks like a filmy heartsease. A curious wheelwork runs round its four outspread petals, and a chain of minute things, living and dead, is winding in and out of their curves into a gulf at the back of the flower. What happens to them there we cannot see; for round the stem is raised a tube of golden-brown balls, all regularly piled on each other. Some creature dashes by, and like a flash the flower vanishes within its

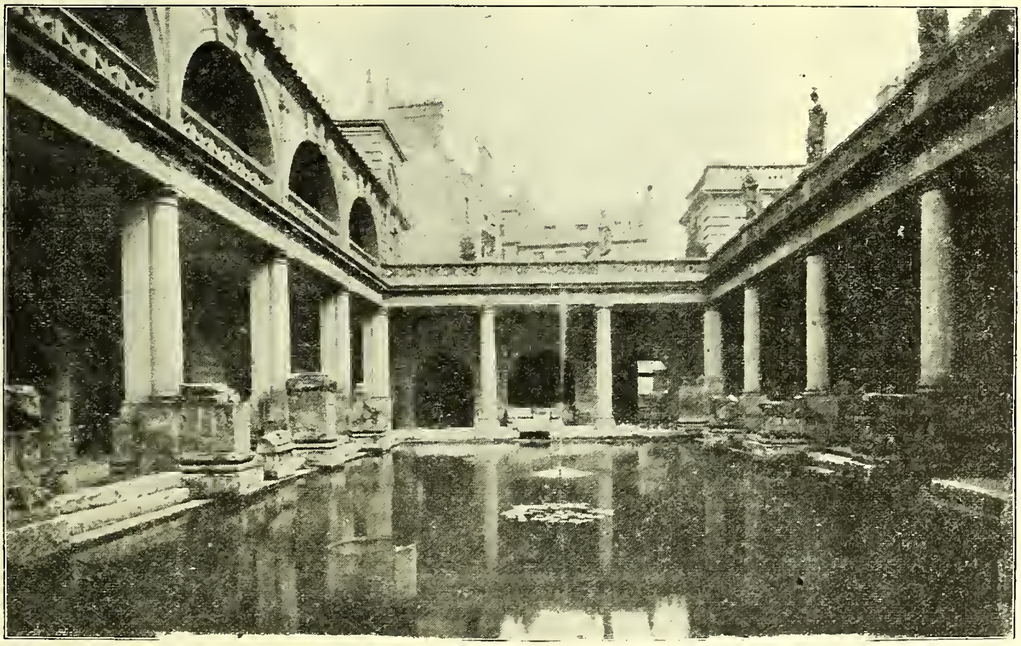
tube. We sink still lower, and now see on the bottom slow gliding lumps of jelly that thrust a shapeless arm out where they will, and grasping their prey with these chance limbs, wrap themselves round their food to get a meal; for they creep without feet, seize without hands, eat without mouths, and digest without stomachs.

The delights of botany are well described by my predecessor in last year's address:

> Like the apothecaries of old, we live straitened lives, but we can increase their brightness by pursuing in our leisure hours a science such as the one I am mentioning; and by recording such interesting facts as Nature from time to time may reveal to us, we may do something to explore a small portion of that vast forest of the unknown, by which even in the twentieth century we are surrounded, or lighten to some extent the gloom of ignorance which enshrouds some of Nature's problems, and which even the rays of the electric light have not at present illuminated.

True are these lines which I once heard the late Dr. H. B. Brady read, in an address at the Square, and have never forgotten—

Nature never did betray
The heart that loved her; 'tis her privilege,
Through all the years of this our life, to lead
From joy to joy; for she can so impress
With quietness and beauty, and so feed
With lofty thoughts, that neither evil tongues,
Rash judgments, nor the sneers of selfish men,
Nor greetings where no kindness is, nor all
The dreary intercourse of daily life,
Shall e'er prevail against us, or disturb
Our cheerful faith that all which we behold
Is full of blessings.



The Great Roman Bath, showing Terraces above for Promenading.

I will not attempt to discuss the progress made in any of the branches of science connected with our calling, but I think it will be desirable to mention two subjects connected with my own avocation that will be of interest to almost every pharmacist. The first is that of

Essential Oils,

a group of bodies that have attracted so much attention in recent years. In discussing the composition of these bodies, it should always be borne in mind that they are necessarily of a very indefinite nature, and that they vary in composition to a remarkable extent, depending on so great a variety of causes and conditions, such as cultivation, temperature, humidity, soil, sunshine, variety of the plants, maturity of the portion from which the oil is obtained, and so many other circumstances that to start by considering them to be definite mixtures of chemical compounds, and to generalise on a few particular experiments, is very dangerous, and every endeavour should be used to obviate such a possibility. But it is one which is always hard to resist, and unfortunately has sometimes been encouraged to a considerable extent. It is well known that lemons grown in different portions of Sicily yield oils of different optical rotations, but with fairly constant degrees of rotation in each particular district. Black and white peppermint appear to alter from one variety to the other in different climates, and mint grown in different countries yields very different oils, as shown by John C. Umney. More attention has been recently paid to a branch of this subject which has been greatly neglected. I refer to the development of the various constituents of essential oils during the growth of the plant. Much information can be gathered in this quarter, in a few cases, on account of the fact that certain plants yield several oils in regular sequence, which can be periodically and frequently examined. For example, a pure orange-flower oil—the oil distilled from the orange peas, as they have been termed—and normal orange oil are well-known articles of commerce, and have been sufficiently well examined to prove that the terpenes are developed with the maturing of the fruit. But it is in such cases as the development of the esters in lavender oil, &c., that one must examine the oils under less favourable conditions. In this department, Charabot has particularly interested himself, and has, amongst other conclusions, stated that the formation of esters in the plant takes place by the direct action of acids on alcohols; it is favoured by a kind of Enzyme which Exerts its Dehydrating Action inside the chlorophyll granules. A careful perusal of Charabot's various papers, however, leaves one with the feeling that the conditions of the experiments were not such as to allow very safe deductions to be drawn from them yet. The possibility of determining accurately a definite constituent of an essential oil is very tempting, and frequently biases one so that an attempt is made to value the oil on such a basis. This is most marked in some cases in which it should be so—that is, where it has been pretty clearly decided that the constituent is the only valuable one present—such as, I think I may say, the cineol in eucalyptus oil. But the fact that the constituent is easily determined should be severely put aside in forming an opinion on the matter. I take lavender oil as a type. I express no opinion on the point that there are two opposite schools of thought here—the one urging that lavender oil should invariably be valued on its ester-contents, the other holding that such a valuation is useless. In Leipzig the oil is sold on such ester-value, whilst in the home of its production, the South of France, it is not. Parry has stated that some of the finest oil of the Italian frontier contains but 25 per cent. of esters, and John C. Umney has said that some oils with over 40 per cent. of esters are very rank, although he believes that the ester-value is a useful basis for classifying oils below 40 per cent. Messrs. Schimmel are the chief supporters on the Continent of the ester-value, whilst the majority of the actual distillers are quite averse to it. The need of continued researches before coming to any conclusion is therefore obvious. Many more examples of endeavour to draw hard-and-fast conclusions before the time is ripe for them might be given, but time will not allow me to more than call attention to the point in the way I have just done. An important discovery of the past few years is the detection of a few nitrogenous compounds in certain essential oils. Of these the most important is methyl anthranilate, the peculiar amido-acid first found in neroli oil. This odorous ester was discovered in oil of neroli by Erdmann, and soon after in oil of jasmin by Hesse and Müller. It was then shown to be present in the oils of orange, orange peas, and lime-flowers by Parry, and in mandarin oil by Walbaum. Charabot then found it, together with methyl methyl-anthranilate in mandarin leaf oil, and John C. Umney has detected it in Chinese neroli oil. The discovery of the open-chain alcohol, nerol, an isomer of geraniol, by Hesse and Zeitschel, this year is interesting and important, as hitherto the only known alcohols of this series found in essential oils were geraniol, linalool, and citronellol.

Abbey and Pump-room Colonnade, Bath.

Recent Progress.

Sandalwood oil has been the subject of numerous researches during the past few years. The earliest work on the subject is that of Chapoteaut, which was followed by Parry, who observed that Chapoteaut was working on adulterated oil, and that the oil consisted almost entirely of alcoholic constituents, and not aldehyde. Since then numerous Continental chemists have taken up this subject, and it is now clear that the so-called santalol is a mixture of at least two isomeric sesquiterpene alcohols, and that the bodies present in the West Australian and West Indian oils are quite different from them. Hence the oils from the two last-named sources should hardly be called sandalwood oil at all. The chemistry of lemon oil has been a fruitful study of recent years, and I am glad to recognise that the work has to a very considerable extent been accomplished by English chemists. It is not long ago that we regarded lemon oil as little else than terpene; when citral was found some believed that the chemistry of lemon oil was settled. Although a great many bodies have now been found in the oil, the most important (recently discovered) are the esters of geraniol and linalool, discovered by Umney and Swinton, and the aldehydes, octyl and nonyl aldehydes, for which credit is due to Burgess and Child. If lemon oil be distilled under ordinary pressure—a proceeding the expediency of which in analytical processes is open to considerable doubt—the first 10 per cent. will naturally consist in the main of terpenes. It had been observed that many samples under such treatment yielded a distillate which differed only a degree or so in its optical rotation from that of the original oil. On a comparatively few experiments—and possibly relying on a now admittedly incorrect statement of Schimmel that lemon oil contained no trace of pinene—the last edition of the British Pharmacopœia directs that 2° shall be the maximum difference in rotation. Now, the same sample of lemon oil, if distilled under reduced pressure, and under suitable fractionating apparatus—which is the rational method of conducting the test—will often yield a distillate which has a different figure of 8°, or even 12° in rare instances. Where did the absurd first-advocated standard of 7 to 8 per cent. of citral in lemon oil come from? Was it through a few exceptional samples, or was it through a mistake in the analysis of the oils? I take up several price-lists, and find lemon oil guaranteed to contain 7 per cent. of citral. I think I am not exaggerating when I say that such a sample is practically never met with. If it were, we could easily obtain from 12 to 15 per cent. of terpeneless oil from natural lemon oil, which is admittedly absurd. The work on this group of oils has led to the patenting in Germany of artificial oils of lemon and mandarin. It is probable that such patents will die a natural death, but attention should be called to them. I might spend the whole of the time at my disposal on this interesting subject, but my object is merely to point to the matter and leave those interested in it to follow it up for themselves. Before leaving the subject of essential oils, I feel compelled to draw attention very briefly to one other aspect of it. I mean the

Adulteration Practised in Commerce.

Time was when adulteration was very coarse and very frequent. It is still very frequent, unfortunately, but it is not now so coarse. With the development of our knowledge of the chemistry of the oils, the refinements in adulteration have grown; and it becomes a continual struggle between the honest chemist and the dishonest but skilful adulterator as to who shall circumvent the other. Compare the old adulteration of lemon oil with turpentine and the mere dilution with lemon terpenes. Petroleum oil and camphor oil are still regular adulterants of peppermint oil, but glyceryl acetate is far more ingenious, and has been recently found by C. T. Bennett. A small percentage of cocoanut oil is common in lemongrass oil, but 5 per cent of acetone has much greater chances of passing unnoticed, and has recently been found by Parry. The "scientific" adulteration of the oils of citronella, peppermint, lemon, rose, spike lavender, and many others has reached alarming proportions, and they should be watched with great care. For years a solubility test was accepted as a guarantee of the purity of citronella oil, simply because American kerosene was the usual adulterant, and rendered the oil insoluble in 80-per-cent. alcohol. The wily adulterator naturally sought a fresh adulterant, and for years past many hundreds of tons of adulterated citronella oil must have come into this country and been accepted merely because it passed Schimmel's test. But the recent work of Parry, Umney, and Bennett has exposed the extent of this adulteration and caused a fresh standard of purity to be looked for. I am informed from quite reliable sources that not 5 per cent. of the citronella oil on the market is now pure. This can only be regarded as a disgraceful state of things, and it is only by the most scrupulous care that such dishonesty can be checked.

Aërated Waters made at Low Temperature.

The second matter of present interest in my own branch of manufacture is the recently demonstrated enormous advantages of refrigeration applied to the manufacture of aërated or carbonated beverages. If water be cooled to the temperature of greatest density, or to about 4° C., the necessary amount of carbon dioxide is absorbed so readily that a pressure of two atmospheres in the carbonating-vessels is found to be sufficient for the manufacture of soda-water instead of, as at present, five to twelve atmospheres being required at normal temperatures, and soda-water at the reduced temperature mentioned can be practically treated as a still liquid, as no serious disengagement of gas takes place until the temperature has been allowed to rise. It will at once be realised that under these conditions the bottling of aërated waters becomes a much more simple and rapid process than that which now obtains. The breakage in the bottling-machines is greatly reduced, the danger to the operatives is consequently materially lessened, greater economy in production is obtained; but the most important advantage is that of uniformity in the quality of the product and in the pressure in the bottles. The system is in full operation in several factories in America and in Germany, but, as far as I am aware, it is not in full operation in any factory in the United Kingdom; but it has been partially adopted, and arrangements are now being made for its complete adoption in more than one factory in England, and it appears to me that it must of necessity be adopted by every good-class manufacturer. As the refrigerating or ice-making plant required must necessarily be of sufficient capacity to refrigerate the greatest amount of water required to be treated during the busiest working day, it necessitates a considerable expenditure in first cost, and as the working hours of any factory are necessarily less than one-third of the hours in the week, and considerable waste is involved in recovering reduced temperature after every stoppage, it appears to me that to work the process economically the refrigeration must necessarily be carried on continuously, and the cold produced beyond the usual factory hours must be utilised in ice-making or in some other way.

Since our last meeting the

Departmental Committee on Poisons

has issued its report. It is well known to you all that this Committee was appointed as the result of an energetic and well-organised agitation by the proprietors and manufacturers of secret poisonous compounds sold for use in connection with various agricultural and horticultural operations, organised by a solicitor acting in the interests of these manufacturers, and promoted in the House of Commons by a maker of these poisonous compounds. The finding of the majority of this Committee was, broadly, what was desired by the makers of these compounds—that is, that poisons for use in connection with agriculture or horticulture should be freed from the restrictions now placed on their being sold, although the most important portion of the evidence and a minority report by Mr. Walter Hills pointed out the grave public dangers that would ensue from the lessening of the present restrictions. No Bill based on this report has yet been introduced, but a most instructive commentary on the report is afforded by the fact that a Bill for the compulsory dipping of sheep was introduced by the Department of Agriculture, when it soon became evident to the late President of the Board of Agriculture that more information on the subject was necessary before the Bill could be passed, and that it was desirable that positive information should be obtained as to whether the use of poisons was necessary, and also as to what preparations would be most effective in use for the purpose. The Bill was therefore withdrawn, and a Departmental Committee has been appointed to conduct an inquiry as to the composition and essential constituents of efficient dips and other preparations for the treatment and dressing of sheep, &c. Another most significant commentary on the origin of the Poisons Committee and its findings is afforded by the prosecution by the Pharmaceutical Society and conviction of the firm with which Mr. Cross, M.P., and a member of the Poisons Committee is connected for the illegal sale of the "Ballikinrain Ant-destroyer"—a preparation of arsenic put up in a most dangerous, sweet, and seductive form, costing about 3½*d.*, and sold for 2*s.* 6*d.*—a form that no chemist would for a moment assume the responsibility of selling, and at a rate of profit so enormous that it could not be justified. It is to be hoped that in any future legislation the indiscriminate sale of such a preparation will be made still more difficult than it is at present, and that the taxing of agriculture and horticulture by such inordinate profits will be made impossible by the recommendation of the most desirable remedies and by the fixing of reasonable prices by the Board of Agriculture. Nothing is more certain than that chemists are far more anxious to be restricted and assisted in the carrying-out of their responsible duties under the Pharmacy Act than they are to make profits out of such sales; for the grave dangers to the public and the heavy responsibilities connected with sales of poisons are always present to the chemist, and his experience impresses them on him. It would be easy for me to pile up evidence in support of these statements, but time will not permit me to notice more than two aspects of the question not at present realised by the public—*i.e.*, (1) the impunity with which the criminal poisoner is enabled to carry on his or her operations, and (2) the very slight protection to the public that is afforded by the present system of death-certification. The two most important Government inquiries into matters relating to

Death-certification

during recent years have been those of—

(1) The Select Committee appointed in 1893 to inquire into the sufficiency of the existing law as to the disposal of the dead for securing an accurate record of the causes of death in all cases, and especially for detecting them where death may have been due to *poison*, violence, or criminal neglect.

(2) The Departmental Committee appointed in 1902 to prepare a draft of the regulations to be made by the Secretary of State in pursuance of the powers given him by Section 7 of the Cremation Act, 1902.

It is not too much to characterise the evidence before these two bodies as "revelations," and it has a distinct bearing on the question of death-certification in relation to poisoning. For instance, the Death-certification (1893) Committee reported that—

> So far as affording a record of the true cause of death and the detection of it in cases where death may have been due to violence, *poison*, or criminal neglect is concerned, the class of certified deaths leaves much to be desired. The Registrar-General deposed that "never a year passed in which he did not have to prosecute some doctor for giving false information on the certificate."

In the report of the Cremation Committee it is stated:

> We have also had to consider the possibility of cases in which the person who would naturally give the death-certificate is himself the murderer.

Dr. W. Wynn Westcott pointed out in a paper (*British Medical Journal*, December 6, 1902) that the London County Council had long since drawn up recommendations which had been presented to successive Lord Chancellors and Home Secretaries, and which recommended, *inter alia*—

> That no death should be registered without a certificate of the cause of death, signed by a registered medical practitioner or by a coroner; that no such certificate should be given until after inspection of the dead body; and that the certificate must include a declaration of the absence of the signs of poison, violence, accident, or criminal neglect.

No means exist for the critical examination of medical certificates, and the ambiguity of the symptoms often enables the secondary cause of death to be registered with the concealment of the primary cause. With burial the body can, of course, be exhumed, in the event of suspicious circumstances arising afterwards, but—although the strictest investigation before by the cremation authority is devised to prevent it—we cannot overlook the facts that cremation destroys the evidence of crime, and that the Cremation Committee (1902) disclaimed the idea that "any possible restrictions can guard completely against the risk of cremation being used for the concealment of crime."

It must not be forgotten that about three thousand burials take place every year in this country without any death-certificate, and it is fairly certain that criminals who are acquainted with the effects of poisons would not be at all likely to select any means of effecting their objects other than some form of poison. Reference may be made here to some of

The Celebrated Murders

mentioned in the above reports which have a bearing on the matter by reason of a certificate or a burial order, either false or careless, being relied on to successfully hide the crime.

The University College, Bristol.

The Famous Besançon Case.—In 1854 the learned chemist, Henri Deville, whilst Professor and Dean of the Faculty of Science at Besançon, was called upon to perform a medico-legal investigation of a case in which an entire family had died during an epidemic of cholera. The six members of the family were exhumed, and four of the six were found to have died from arsenic at the height of the cholera epidemic. The murderer, who would inherit the property, hoped that from the similarity between the symptoms of cholera and those of arsenic-poisoning his crime would remain unknown for ever. Commenting on this crime, Professor P. Brouardel (who, as director of the Morgue, obtained perhaps an unequalled experience of medico-legal cases) says in his invaluable book "Death and Sudden Death," that "if these bodies had been submitted to cremation the toxicological analysis would have been impossible." It is only fair to add, however, that whether the bodies could have been cremated in this country at the present time is extremely doubtful. The certificates required under the Cremation Act, 1902—viz., (1) an application for cremation making certain declarations, (2) registrar's certificate, (3) certificate of medical attendant, (4) confirmatory medical certificate, and (5) authority to cremate, signed by the medical referee of the cremation company—have not been sufficiently long in vogue to allow of an opinion as to their efficacy as a check on the concealment of crime.

Hall of University College, where the Meetings were Held.

The Rugeley Murders (1855–56).—The murderer was Dr. William Palmer, of Rugeley. The body of Ann Palmer, his wife, had been fifteen months in the grave under a certificate of "bilious cholera." J. P. Cook died suddenly, and *Palmer gave the certificate.* On exhumation of Cook's body there was evidence of poisoning by strychnine, and antimony was also found in his body. The antimony was used by Palmer to expel the strychnine. Mrs. Palmer's body was exhumed, and antimony found in her body. "The history of the illness," says Dr. T. Stevenson, the Home Office analyst, "shows that the symptoms were consistent with the effects of tartarated antimony, but not with those of 'bilious cholera' or any other disease. Antimony had not been prescribed for her during her illness." The conviction for the murder of Cook led (according to the *Quarterly Review*) to the exhumation of six other victims of Palmer, murdered by various means.

Winslow (1860), indicted for the murder of his mistress, Ann James, to whom, it was clearly proved, antimony had been administered. The prisoner, however, was acquitted, owing to the difficulty of proving the administration. Three relatives of the woman James were also proved, after exhumation, to have died from antimony-poisoning. The cause of death was not suspected at the time.

Catherine Wilson (1862), convicted for the murder of Mrs. Soames, while nursed by the prisoner. The body was exhumed, but no poison was found in the remains; yet the medical and other circumstances proved to the Court that deceased had been destroyed by vegetable poison—probably colchicum. From the facts at the trial it was proved that deceased was one of *four* victims of the prisoner.

Dr. De la Pommererais (1864), convicted in Paris of the murder of a woman named Pauw, whom he insured. She died from digitalin-poisoning. He found no difficulty in getting a certificate for "gastritis and perforation of the stomach."

Dr. E. Pritchard, of Glasgow (1865), charged with the murder of his wife and mother-in-law, by administering tartarised antimony, aconite, and opium to the latter in tapioca, porter, or beer, and in Battley's sedative solution, and by administering tartarised antimony and aconite to his wife in articles of food and medicine. He certified that his mother-in-law died of paralysis and his wife of gastric fever. He was executed.

Mary Ann Cotton (1873), indicted for the murder of her stepson. The body was exhumed and arsenic found to be the sole cause of death. She was convicted. It is stated on well-ascertained facts that she had murdered, by poisoning, her mother, fifteen children, three husbands, and a lodger—making in all twenty persons in a few years. They died rather rapidly one after the other, and the medical man assigned "gastric fever" as the cause of death when the symptoms were not consistent with this disease. Commenting on this trial, Dr. T. Stevenson says: "The trial and conviction of this criminal for those insurance-murders brought to light another fact—viz., the great insecurity of life in this country, owing to the perfunctory manner in which some medical men discharge an important duty in filling up certificates of the cause of death. With fully marked symptoms of arsenical poisoning, these sudden and violent deaths were registered one after the other as 'gastric fever'"

Higgins and Flannigan (1884) committed a murder by means of arsenic, and no fewer than ten other persons, all of them duly certified and buried, were afterwards proved by exhumation to have been destroyed by them in the same way. They had procured fly-papers, soaked them in water, and administered the liquid to the deceased. The use of these fly-papers for poisoning illustrates in the strongest manner the desirability of prohibiting the unnecessary use of poisonous materials for any purpose in which non-poisonous articles would be equally suitable.

Surgeon-Major Cross (1887) poisoned his wife with arsenic and strychnine, registering her death as due to "typhoid."

Neill (1892) murdered Matilda Clover by strychnine. Her body was exhumed. The Treasury prosecuted the "apothecary" or "L.S.A." who gave the certificate of death, for unlawfully and wilfully making a false certificate of death (delirium tremens). He had not attended her nor seen her when dead, but relied on the statements of a brothel-keeper and her servant.

Chapman (1903), executed for the murder of his "wives." There were three at least of them who died from antimony-poisoning. The first "wife" was certified as having died from phthisis, the second from gastro-enteritis, and the detection of arsenic first, and antimony later, in the body of the third led to the discovery of the crimes. The record of the sale of antimony kept by the chemist was most material evidence in proving poisoning by antimony.

At Bilston some few years back two children were killed by antimony, and two months afterwards the body of a third child was exhumed and antimony found in it, although in this last case the cause of death had been certified as "asthenia and gastric fever."

The number of these illustrations could easily be increased tenfold, but the cases that I have cited are, I think, sufficient to show the position.

Dr. T. Stevenson said, in evidence before the Cremation Committee, that he had been through all the criminal cases of arsenical-poisoning of which he had personal knowledge, and in 50 per cent. no sufficient suspicion had arisen in the mind of the medical attendant that the cause was one of poisoning until after death. He could not say in what proportion it arose after burial, but in the very first case on which he was employed by the Home Office the body had been buried, no suspicion arising. There was a medical certificate, and the neighbours brought about the suspicion.

The reports and evidence of the two Committees that I have quoted from have a very important bearing on another subject of great importance to the public safety—that is, the

Separation of Prescribing from Dispensing.

In almost every other civilised country in the world the dangers of the prescriber dispensing his own medicine and giving his own death-certificate have been realised, and the separation of the functions of prescribing and dispensing as far as possible has been enacted and enforced. It is eminently desirable in the interests of the safety of the public that this should obtain in our own country, and it may be laid down as an indisputable fact that the chemist is not by his education and training competent to prescribe, nor is the doctor by his education and training competent to dispense. The intrusion of the old apothecaries on the domain of medicine in England and Wales has resulted in serious confusion in the public mind, and has led to public evils. It is necessary in the public interest that such another mistake in connection with medicine should not be repeated. I am glad to know from personal experience that prescribing by chemists is greatly diminishing, but in order that the separation of prescribing and dispensing should be more fully realised, it is necessary that the pharmacist should have the position which he has in other countries, and that his calling should be recognised by the State as a distinct branch of the medical profession. In order that he should attain this object nothing, to my mind, is more important than that, before his scientific training as a pharmacist, he should be compelled to pass an examination equal in stringency to that required on entering on the study of medicine, which would enable the pharmacist to study for the higher branches of the healing art without having to pass a further Preliminary examination. The insufficiency of the present Preliminary examination seriously handicaps the pharmacist in his scientific progress and in attaining that position which he should command in the public interest. It is not necessary for me to argue further that pharmacists ought not to prescribe and dispense their own prescriptions, but it must be recollected that the doctor is a watchful check on any blunder made by the chemist, whilst there is no check on any mistake made by the doctor who prescribes and dispenses his own medicine, because he gives his own death-certificate, and it must necessarily be a serious temptation to a medical man to avoid publicity in the case of such a misfortune. It should be borne in mind that the regulations of the Pharmaceutical Society, in accordance with the Pharmacy Act, as to keeping, dispensing, and selling of poisons, are not binding on medical men or on public institutions. These provide that chemists shall (1) keep poisons in bottles with a distinctive mark indicating that they contain poisons; (2) store poisons on one of three special systems designed to distinguish the poison-bottles from others; and (3) send out liniments, embrocations, and lotions containing poisons in bottles distinguishable by touch, and with a label that the contents are not to be taken internally. I believe that the following list fairly represents the number and nature of the reported mistakes in doctors' surgeries, public institutions, and chemists' shops published since 1898. I have omitted names, but have given the dates of the reports in the medical and pharmaceutical journals.

Mistakes in Doctors' Surgeries (1899–1903).

January, 1899.—Dr. —— was treating a patient for influenza. He gave his dispenser (a medical student, who said he had had twelve years' experience in dispensing medicines) a prescription and also verbal instructions to make a 4-oz. linctus of morphine, and then at the moment changed it into 8 oz. The dispenser was confused in consequence, and was not sure from the prescription and the verbal alteration what was to be taken. He understood the 1½ dr. in the prescription to mean powdered morphine, and did not recollect the doctor saying it was to be liquor morphinæ. He worked out the prescription as well as his confused state would allow him. He weighed 50 gr. of morphine, and some gum acacia, and measured eight drops of prussic acid, and mixed them together. The bottle was labelled "Two tablespoonfuls," but he calculated the 50 gr by always having dispensed teaspoon doses. It did not occur to him to calculate the amount of morphine in two tablespoonfuls. The Coroner commented on the prescription as having been "made out in a most slipshod manner," and said, "If the dispenser did not understand the prescription, he had no right to make it up." The jury returned a verdict of death by misadventure, and the dispenser was censured.

June, 1899.—Dr. —— administered to a man suffering under the influence of drink a draught containing chloral 20 gr., potassium bromide 10 gr., and morphine between 1 and 2 gr. A *post-mortem* showed death from diseased condition of organs accelerated by an overdose of morphine. The doctor admitted that he did not weigh the constituents of the draught. The jury returned a verdict according to the medical evidence, and added a rider: "And the jury consider the act of guessing the quantity of active poison most reprehensible."

September, 1899.—Dr. —— dispensed, as he believed, tincture of steel, infusion of chiretta, and chloroform-water. The lady patient became ill, and afterwards told the doctor that she strongly suspected that she had been poisoned. To convince her to the contrary, the doctor drank some of the medicine, became seriously ill, and died from strychnine-poisoning. The medical evidence showed there had been a mistake (arising, it was suggested, by the proximity of the two bottles) in dispensing solution of strychnine for chloroform-water.

January, 1900.—Dr. —— always told his housekeeper to keep the belladonna-and-aconite liniment in the surgery. It was, however, "inadvertently left in her room" on one occasion, when it was "given" by one of the doctor's servants to a lady visiting the doctor, who was suffering from faceache. She died, and a verdict was returned of misadventure.

October, 1900.—Dr. ——, whilst confined to the house from temporary indisposition, took a dose of opium, to the effects of which he succumbed. Two local doctors, who gave evidence, said that "medical men, when using poisons for themselves generally measured with their mouths," adding that whilst they were careful to measure for other people they were not careful for themselves. Verdict, misadventure.

December, 1900.—Dr. —— wrote a prescription for a powder for an infant's arm swollen after vaccination. The prescription was for "urophen and boracic acid." The surgery dispenser read it as "morphia 1 scruple, boracic acid 2 dr." There was no initial "e" to the word "curophen." The dispenser cautioned the mother that it contained poison, and labelled the powder "Poison-powder." The doctor, in evidence, stated that the dispenser's duty was simply to prepare medicines according to the prescription, and not to make inquiries about them. The jury returned a verdict of accidental death, and asked the Coroner to say that they hoped the doctor would, in writing prescriptions, take every means possible to avoid the recurrence of such an unfortunate mistake. As to the dispenser, the jury felt that his business was one requiring the greatest care, and they did not think that he showed quite such an intelligent interest in the matter as he ought to have done when he made up for a baby a prescription containing a violent poison. They thought he might very well have asked a question about it in the first place.

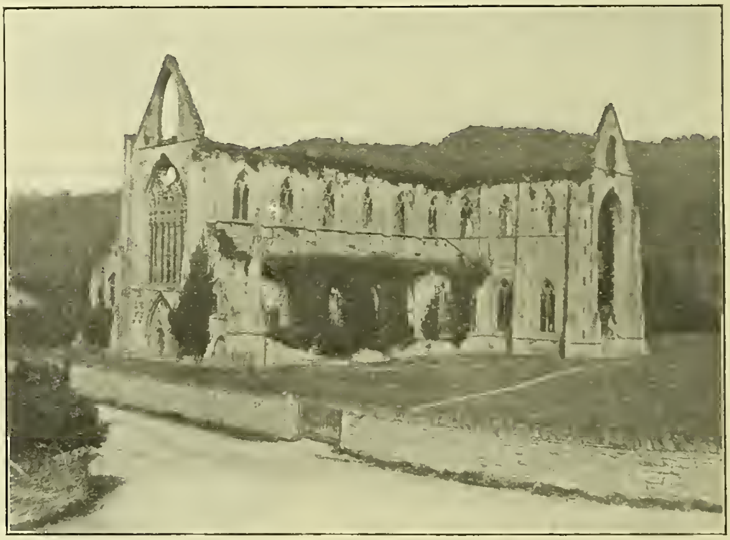
December, 1900.—Dr. —— kept four surgeries in charge of housekeepers. An application was made at one of these for the doctor's attendance on a woman. His housekeeper telephoned him, but he declined to come that night, and telephoned to the housekeeper to mix a bottle of medicine consisting of mag. sulph. 1 oz., tr. nuc. vom. 1 dr., and water 6 oz. Also one calomel pill was to be supplied. The next morning the patient was dead. The housekeeper's daughter, aged seventeen years, mixed the medicine in her mother's absence, and had done so before in the doctor's absence. A *post-mortem* showed death to be due to pneumonia, but a doctor said that the medicine was not proper for that complaint. The Coroner condemned the action of the doctor in prescribing without seeing the patient, and said, "For a girl of seventeen to act as a doctor's assistant was a very dangerous practice." Verdict, death from pneumonia, and the Coroner consented to report the matter to the General Medical Council. Writing to the local Press, the doctor himself said, "It would be impossible for a country practitioner to carry on his profession if he could not employ unqualified dispensers—usually his wife or daughter."

January, 1901.—Dr. —— instructed his assistant to make up for a patient suffering from rheumatic gout a belladonna-and-aconite liniment. This was done, and put in a bottle with an ordinary label, not marked "Poison." Afterwards a mixture was dispensed and forwarded to the invalid. Subsequently the latter sent for another bottle of medicine, and the liniment, already made up in a bottle similar to the previous medicine, was forwarded to him; he took $1\frac{1}{2}$ oz., and died the same night. The jury found that the deceased had been accidentally poisoned, and expressed the opinion that bottles containing poisonous medicines dispensed by medical practitioners or chemists should have a distinctive shape, and be labelled "Poison" on both sides.

March, 1901.—Dr. ——, receiving an urgent call to a diphtheria-case, left an unlabelled bottle of carbolic acid on his desk. Returning, he found a number of patients awaiting him, including one to whom he gave a bottle of—as he thought—physic for catarrh. The patient took some of it, and died. In shape and colour the carbolic-acid bottle and the medicine bottle were alike, and the doctor labelled the former for the latter. It was not until after returning from the patient's death-bed that he found the medicine-bottle on his desk and the acid-bottle missing. Verdict, misadventure.

March, 1901.—Dr. —— employed an unqualified dispenser who, in making up powders for three children, by mistake substituted strychnine for santonin. The bottles were on the same shelf in the dispensary. The first child was buried under the doctor's certificate before the death of the other two aroused suspicion. He gave the certificate because he thought the worms (from which all the children suffered) had set up convulsions, which was the cause of death. Strychnine was found in the child when disinterred. The jury found that all three deaths were caused by the administration of strychnine through misadventure, and strongly recommended that all bottles containing poison should be kept distinct and separate from other bottles.

April, 1901.—Dr. —— was attending a child suffering from typhoid fever. The father called at the surgery for the child's medicine, and received a bottle (the label on it was upside down), some of the contents of which were given to the child. The doctor found that he had given the father a bottle of "tinctura ferri," instead of one produced at the inquest, labelled "For ——'s child." The evidence of one of the doctors who made the *post-mortem* was that the dose would have caused death even had deceased been in good health. Another doctor present at the *post-mortem* would not like to have said that, although he would not like to try the experiment. The jury returned a verdict of misadventure, and expressed the opinion that the doctor should have been more careful in dispensing his medicines.



Tintern Abbey.

February, 1902.—Dr. —— supplied liniment of aconite and belladonna and a mixture to a woman patient in bottles "very much alike." She drank the liniment in mistake for the medicine. Jury returned verdict of misadventure, and Coroner said it would be advisable for doctors to strictly adhere to a rule to put such a poisonous liquid in distinctive bottles.

September, 1902.—Dr. —— prescribed neuralgia-mixture for one woman and a mixture containing morphine for her mother. The latter visited the former, bringing her medicine, which was drunk by the daughter by mistake, and she died. The doctor, in evidence, said it was not customary to put such a medicine as the mother's in a poison-bottle, as it was not *de facto* a poison to the patient for whom it was dispensed. Asked what possible objection there was to putting it in a poison-bottle, he said that if she died the relatives would have a suspicion that she died from it. The Coroner characterised this as a "wild" explanation. In returning a verdict of misadventure, the jury added that there should have been a label on the bottle indicating its poisonous contents.

November, 1902.—Dr. ——, in making up powders for two children, by a mistake which could not be definitely explained, put in sulphate of strychnine in place of santonin. The bottles were kept in the same cupboard; one child died, the other was saved by using chloral as an antidote. The jury found death by misadventure, and suggested that poisons should be kept in fluted bottles and separate from other drugs. They expressed sympathy with the doctor.

November, 1902.—Dr. ——, in making up a bottle of medicine for a child, labelled in error a carbolic-and-glycerin lotion, which was in a similar bottle. This he gave to the mother, it was administered, the child died, and the jury attached no blame to the doctor, but agreed with the Coroner that a blue fluted bottle should have been used for the poison.

May, 1903.—Dr. —— mixed the labels for a belladonna-and-aconite liniment and a mixture, with the result that a prominent local gentleman was poisoned fatally. The jury returned a verdict of death by misadventure, and recommended that liniment should be placed in bottles of special shape and labelled "Poison." The jury expressed admiration of the doctor's manly conduct in confessing the mistake.

MISTAKES IN PUBLIC INSTITUTIONS (1899–1903).

April, 1899 (Hospital).—Two ounces of paraldehyde given at night to restless patient instead of 1 dr. It was taken by a nurse from a bottle of pure paraldehyde, to which a label bearing instructions for a previous patient had been affixed by another nurse. That label was "1 dr. of paraldehyde in 2 oz. of water." The nurse took this to mean that 2 oz. of this would be equivalent to 1 dr. of the drug. The verdict was misadventure, with an opinion that greater care should be exercised by doctor and nurses in the labelling of bottles and the dispensing of medicines.

December, 1899 (Hospital).—Two patients fatally poisoned by strychnine, through liq. strych. being filled into spt. ether. nit. dispensing-bottles. Three dispensers employed, all having a qualification. Verdict, a misadventure, but in consequence of lax system which obtained in the dispensary, the jury were unable to fix the blame on any individual, but recommended that the poisons should be kept in differently shaped bottles, and that the initials of the dispenser who last filled them should be shown on the bottles.

March, 1900 (Hospital).—Nurse ordered to give a man a preparation of strychnine during the night if he became no better. She took from a chest a preparation of strychnine used for hypodermic injection instead of the ordinary solution. The patient died from an overdose. Verdict, misadventure.

June, 1901 (Asylum).—Three persons died from the effects of an overdose of chloral. The mixture was to contain 30 gr. of chloral, but if, as was conjectured, the concentrated chloral was used it contained 240 gr. The senior assistant medical officer said that, to the best of his recollection, he had taken a bottle from the cupboard containing the poison and placed it on the bench in front of him, together with the bottle containing the diluted chloral. He had to use both kinds of chloral for separate medicines. He left the surgery for a few minutes, and on returning must have picked up the wrong bottle. The jury returned a verdict of misadventure, and added a rider that the bottles or contents should be coloured differently.

December, 1902 (Workhouse).—Nurse gave carbolic lotion in mistake for "house-mixture." Inmate died. Suggestions for the storage and care of poisons were ordered to be adopted in future.

MISTAKES IN CHEMISTS' SHOPS (1899–1903).

October, 1899.—Chemist dispensed a doctor's prescription for Mrs. A.; the mixture was repeated. Then the medical man sent a few days afterwards a new prescription for a Mrs. A. of a somewhat similar but not identical address. This was dispensed in the ordinary way. Next a "repeat mixture" was ordered for Mrs. A., with the result that the first prescription ordered by the doctor was dispensed. Chemist thought he was dispensing for two Mrs. A.'s, but there was only one. The first medicine was for reducing fever, the second was a tonic. Verdict, death from milk-fever, probably accelerated by the mistake in the medicine.

August, 1900.—Assistant to chemist was applied to for "fluid magnesia," but after a dose had been given to a child it was discovered that the bottle contained "liquid ammonia." Medical evidence did not in any way attribute the death which followed to swallowing ammonia. A verdict that deceased died from diarrhœa and convulsions was returned.

June, 1901.—Chemist supplied by mistake strychnine in a cough-mixture which he prescribed for a child. He was tried at the assizes and liberated on his own recognisances. It was urged at the trial that at his great age (eighty-two) he did not appreciate the importance of the regulations to keep poisons apart from other drugs. An undertaking was given that he should not again go into business.

August, 1901.—Drug-stores supplied methylated spirit for lime-water. A dose, according to doctor's instructions, was given an infant, who died from syncope, due to a convulsive fit consequent on an irritant. The bottle was "put up" on the manager's instructions by a boy. Verdict, death from misadventure.

May, 1902.—Assistant to chemist supplied strychnine on an order for morphine. A doctor took some, and died.

July, 1902.—Apprentice to chemist supplied laudanum for tincture of rhubarb. There was no doctor's prescription. A death resulted, and the jury returned a verdict of misadventure.

January, 1903.—Drug-stores dispensed a prescription for "two calomel pills to be taken at bedtime," by supplying twenty-four pills inscribed "Two pills to be taken three times a day." Twenty-two of the pills were taken. The prescription was said to be very indistinctly written. Damages of 150*l.* were obtained. The assistant who dispensed was qualified.

February, 1903.—Chemist dispensed liquor ammon. fort. for sal volatile, in consequence of which a man met his death. Chemist himself prescribed the mixture for a cold. He was arrested and tried for manslaughter, and sentenced to fourteen days' imprisonment.

March, 1903.—Assistant to chemist, in dispensing a prescription for powders, by mistake substituted strychnine for exalgin. A death followed, and the result of the assistant being tried for culpable homicide was a verdict of not guilty.

July, 1903.—Qualified assistant to a chemist gave solution of strychnine in mistake for solution of morphine to a man who was in the habit of taking morphine. The man died. Verdict, death from misadventure.

It will be observed that fatal results are reported in all the published accounts of mistakes in doctors' surgeries, and that in the list of mistakes in chemists' shops two cases without fatal results are included and one doubtful case.

It should also be noted that in two of the fatal cases in chemists' shops the chemist combined the functions of both prescriber and dispenser.

THE MATTER SUMMED UP.

These published accounts speak for themselves. It may confidently be said—

(1) That few doctors are competent by proper training to dispense.

(2) That even if they were rendered more fit by education to discharge that function, the very nature of their other duties militates against that concentration of thought which the experience of pharmacists teaches is so essential in the practice of pharmacy.

(3) That the separation of prescribing from dispensing necessarily insures much greater care and thought by both the prescriber and dispenser; and, further, in each case one is a check on the other.

(4) That it would be more satisfactory from a public point of view were doctors freed from the possibility of having mistakes to cover or answer for.

This last could be best obtained by separating pharmacy from medical practice altogether, or by insisting on doctors employing only qualified chemists in their surgeries, the doctors themselves not to be allowed to dispense. There is ample precedent for the former of these alternatives. In France, for instance, physicians are not allowed to sell medicines to their patients, or even keep a stock of specially prepared medicines on hand for dispensing, except when the pharmacist of a locality refuses to make up a prescription according to the doctor's orders, and only then after duly stating his refusal, or, again, in cases where there is no pharmacy within a few miles of the doctor's residence. Although the doctor cannot, in principle, sell or retail medicines, he has the right to have them prepared in his presence by a pharmacist of his choice, and take the same himself to his sick patient. In Germany and Austria doctors cannot dispense medicines except where, as in sparsely populated districts, the population is too small to support a pharmacist. According to the Dutch, Danish, Italian, and Spanish medical laws, the doctor prescribes the medicine and the apothecary prepares it. The doctors who establish themselves at places where no apothecary is established are authorised to furnish medicine. Without enumerating all countries where pharmacy cannot be conjointly practised by the medical profession, it may be mentioned that even in such a Republic as the Argentine prescriptions can only be dispensed in pharmacies unless there is not one within reach of the medical man.

It may be said that this is a trade agitation. It is as much a trade matter for the chemist who is specially trained for the purpose to have the dispensing of medicines as it is for the doctor to desire to participate in it. But, as a matter of fact, the question is one of considerable public importance, and complaint as to the deficiencies of the present system can only come from pharmacists initially, because to them is made known the manner in which the public suffer, or run the risk of suffering, through the combination of the functions of prescriber and dispenser. That the "trade" aspect of the question is not lost sight of by a section of the profession is shown by a letter to the *British Medical Journal*, which also illustrates the manner in which the public suffer:

> After many years of both dispensing and non-dispensing practices, I infinitely prefer the former. Double the income, with half the work, is the result of dispensing. If the practice exceeds 700*l.* it is well to keep a dispenser, in my experience, and this can be done with little expense, even in smaller practices, by the aid of a pupil or lady dispenser, who will also act as governess. I never found dispensing affect one's social position, though I certainly do think it is *infra dig.* to be seen mixing medicines.—Yours, &c., Common Sense.

A better example is that furnished by letters read in an action brought by a *locum-tenens* to recover fees due. The defendant doctor wrote to the plaintiff doctor:

> The surgery, to pay expenses, must make at least 4*l.* per week, so charge them more, and put in second bottles and plasters, ointments, and lotions whenever you get the least chance. I thought I would give you another hint *re* the practice. When visiting a certain house I saw you gave a big 6-oz. bottle to a child five years old, and the dose marked on it was one teaspoonful three times a day. Now, you will see at once that we should never make a fortune at that rate. There would be forty-eight teaspoonful doses in that bottle, costing 1*s.*, and, taking three every day, these would last for sixteen days. Kindly remedy this. Give to a child of that age ℥iss. bottle, charge 1*s.*, and order a teaspoonful every two or three hours, so they may come back next day or the day after. The 6-oz. bottles are for adults, and order one-tablespoonful dose at least four times a day.

Medical Opinion.

Both the Council of the Pharmaceutical Society and the General Medical Council have been moved in this matter of doctors' dispensing. But, before detailing the circumstances leading to these inquiries, it may be mentioned that the late Dr. D. J. Leech, the Chairman of the Pharmacopœia Committee of the General Medical Council, in addressing the School of Pharmacy of the Pharmaceutical Society in 1899, said:

> The practice of pharmacy by doctors is not only an evil to the pharmacist, but to medical men themselves. It leads practitioners to limit themselves unduly to the use of certain drugs, and they lose time which might be devoted to other and more profitable matters. It is true there are also many people who like to have their medicine from a doctor, but I believe medical men would gain if, whenever possible, they gave up dispensing, and there are few places in which there are not pharmacists ready to take up the work.

At some of our medical schools the abolition of doctors' dispensing has been advocated, notably by Dr. Risien Russell, in an address to University College Hospital Medical School in 1901. The medical journals have also not been silent on the subject. The *British Medical Journal*, in an editorial in April, 1901, after referring to the prosecutions against medical practitioners in the West of Scotland, who left open shops, away from their residences, in charge of unqualified dispensers, said:

> There is another abuse not so easily controlled. . . . We allude to the employment of unqualified persons as dispensers at surgeries some distance away from the practitioner's residence. A case occurred not long ago [see December, 1900, in above list] in which a practitioner, having four of these surgeries connected with his house by telephone, telephoned to the woman in charge, an unqualified person, to make up a prescription containing, among other things, nux vomica, for a patient whom he had not seen. This was, of course, indefensible, and, if it could be shown to be a common practice, would constitute an abuse for which, in the interests of the medical profession, the General Medical Council would be bound to find some remedy.

Again, the *Medical Press* said in May, 1899:

> The General Medical Council has done its best to throw cold water on the outcry against the employment by medical practitioners of unqualified dispensers, and the Government is delighted to have an excuse for leaving these matters as they are. There is not much reason to suppose that such accidents are common, but it is impossible to gainsay the assertion that if they are frequent the public would not be likely to hear of them, seeing that it rests with the person who has most to lose from a scandal to get the dead past to bury its dead.

The "outcry," to which reference is made above, was that which followed the Heaton Norris fatality in 1899. The subject was brought before the Privy Council, Parliament, the General Medical Council, and the Pharmaceutical Society. Mr. W. S. Glyn-Jones addressed a letter to the Privy Council, pointing out that the accident was as much due to the ignorance as the carelessness of the dispenser, and that although it might be said an isolated case did not show that the practice was common, it was a wonder, in view of the death-certificate, that any case became public. He suggested (in view of the then probable fresh poisons legislation) that if it was not expedient to prevent doctors dispensing, it should be easy to enact that the assistants employed should be qualified chemists or doctors. This letter was brought before the notice of the Pharmaceutical Council, and referred, with a suggestion from Mr. Glyn-Jones that an amendment of the Act should be sought, to the Law and Parliamentary Committee. Pertinent questions were asked by Major Rasch in the House of Commons, but only unsatisfactory replies were elicited. The Privy Council forwarded several communications to the General Medical Council, and a committee which was appointed to consider them issued a very weak and unsatisfactory report, but from this and other reports it will be seen that the General Medical Council will not countenance unqualified medical practice, but regards as unprofessional conduct the employment of unqualified persons to sell poisons in doctors' open surgeries, but declines to interfere with the employment of unqualified persons in the private dispensaries of doctors. And the Pharmaceutical Society seems chary of interfering in view of the General Medical Council's action, or, rather, inaction.

It has lately been emphasised in the medical Press that the doctor is not now a capable prescriber. The *Lancet*, for instance, only in April last observed that, "owing to the methods of instruction adopted at the medical schools at the present day in relation to practical pharmacy, it is not a matter of surprise that practitioners should sometimes go astray when writing prescriptions." And Mr. Donald McEwan, in a paper on "Limits of Discretion in Dispensing," having pointed out that the choice of a suitable pill-excipient is frequently given by the doctor to the dispenser, the *Lancet* has acknowledged that this is "in consequence of the want of practical dispensing-experience on the part of medical students." In an article in the *British Medical Journal* for January 10 of this year it is stated that—

> To some of those who have experience in the examination of students for their qualification to practise there is no fact more striking than the extent to which inefficiency prevails in this elementary but most necessary accomplishment.

This appears to be supported by the practice of so many doctors ignoring the Pharmacopœia and ordering nostrums, proprietary preparations, and portable medicines selected from automatic prescribing price-lists, with the result that the patients copy the example of the doctor and prescribe for themselves to such an extent as to be a grave public danger, and against the consequences of which chemists are frequently called upon to warn customers of probable serious results.

Personal Experience.

The importance of separating dispensing from prescribing was very vividly impressed on my mind during a short experience as dispenser to a surgeon in Wales. During the holiday of my employer a neighbouring practitioner acted as *locum-tenens.* He once came in about midnight, and asked me to put up a draught containing a drachm of laudanum. Thinking that he looked rather excited, I inquiringly mentioned the dose, and was measuring it very carefully when, appearing to be annoyed at my want of quickness, he took the laudanum-bottle out of my hand, poured as near as I could guess about 3 dr. into a 1½-oz. phial, and made it up with camphor-water. The patient who took that draught did not wake up the next morning, and the death-certificate was in order. During my connection of over forty years with many chemists' shops, only one serious accident has been personally brought under my notice, and in that instance there was, fortunately, no serious inconvenience produced. This was in a case where the chemist prescribed and dispensed the medicine, and the mistake would not have been possible with the present regulations as to the storage of poisons.

This subject was referred to by Mr. Deane in his addresses at Bath and Birmingham in 1864 and 1865, and by Mr. Stephenson at Aberdeen in 1885. Mr. Martin at Oxford in 1894, in an admirable address to this Conference, also referred to doctors' dispensing, pointing to the deep-rooted habit of the English people to expect the doctor to supply the medicine he has prescribed, and observing that any change can only come about by the slow process of educating the patients and by the exhibition of good will and feeling between medicine and pharmacy. He added: "Before it can happen universally, there is no doubt that pharmacy must have acquired such a professional standing and education as will enable it to perform its delicate and confidential function with the tact and reserve which is the outcome of prolonged training." I have only quoted the opinions of doctors who defend the practice of dispensing; I could easily quote much more weighty opinions from medical men of higher ideals, who realise that the methods pursued in the surgeries of doctors who do their own dispensing are injurious to the elevation of the medical profession. As it is perfectly well known that nearly the whole of the best and most eminent men in the profession carefully avoid having anything to do with dispensing, it is not necessary for me to quote their opinions. I believe that the separation of medicine and pharmacy is proceeding, but the progress is very slow. I venture to hope that my humble contribution to the subject will promote the objects that we have in view—greater respect for the noble profession of healing, greater usefulness of the pharmacist, and, above all, greater safety of the public. Let all our aims be with a view to being of service to others, satisfied that the reward to ourselves will be in proportion as we do good work.

A Vote of Thanks

was then promptly moved. To Mr. S. R. Atkins, as senior past President present, was entrusted the duty of moving it. He said: There are some privileges attaching to old age. I have one senior brother, and he is not present, and that is Dr. Attfield. If he had been present it would have fallen to his lot to do what now falls to my lot, and would have deprived me of the pleasure of thanking Mr. Idris for his very thoughtful address this morning. I am not going to attempt to discuss that address. I would give you the old formula—"Read, mark, learn, and inwardly digest." (Applause.) The President has omitted, in consideration of want of time, and not our patience, a very considerable section of his address which he has paid us the very high compliment of having thought out and prepared. Now, to a busy man, whose life is crowded from morning till night, from January to December, with public life and public work, that is a very great and a very gracious compliment on his part. I will not attempt to indicate the points of the address. I rather want to refer for one moment to the man who has prepared it—your President. Mr. Idris has long been known to us as a man of affairs, a man of business, a man who means business, a man who transacts business. We English people—I will not say anything about the Scotch; they can take care of themselves—(laughter)—will have to take care of ourselves if the Principality is going to walk over us at the pace it is doing now. (Laughter and applause.) Upon my word, I do not know what is coming. In Parliament, in the Church, in public life, in the concert-room, too—that has always been a difficulty to me, to understand how they sing so well; all the voices seem to come from Wales—here is public life being served by gifted and brilliant and largely successful men from Wales. We are extremely pleased to meet the President and to know him more intimately as our friend and co-worker; and if he thinks proper at any time in his business-life to find his way into the House of Commons—(applause)—where Welshmen are conquering, absolutely conquering, antagonism—I am not raising any disputable point; no, no, keep that out—(laughter and applause)—but, whatever may be the subject of their eloquence and oratory, they are sweeping the board largely in the way in which they are influencing public opinion—if our friend thinks proper at any time to represent a constituency in the House of Commons (I say it in no spirit of flattery), that constituency will be honoured by his return; and I am certain of this—that pharmacy will have an eloquent exponent of its principles and work. (Applause.) I need say no more, except to propose that, if we have degrees of thanks (and I suppose we have—the positive, comparative, superlative), we give the superlatively best we can offer our friend. (Applause.)

Mr. J. W. White (Chairman of the Local Committee) briefly seconded the motion, which was put by Mr. Atkins, and carried with acclamation.

The President acknowledged it by saying: I have tried to point out possibilities of pharmacy; and in connection with my calling I have a very deep desire, a very deep love for any and every opportunity of trying to forward the interests of pharmacy. Before I go further, I ask you to thank Mr. James Baker, of Clifton, for giving to every member of the Conference a beautiful guide-book. (Applause.) It contains interesting articles by Dr. Lloyd Morgan, Mr. J. White, Mr. C. Wilson, and others.

Apologies.

The Secretary then stated that he had received letters of apology for absence from, amongst others, Dr. John Attfield and Messrs. N. H. Martin, J. L. Ewing, J. C. Payne, E. H. Farr, C. Umney, J. C. McWalter, C. T. Tyrer, Th. Wardleworth, and Peter Boa. Dr. Attfield's letter was as follows:

Bristol and the Birth of the B.P.C.

To the President of the British Pharmaceutical Conference.

Dear Mr. Idris,—It will interest both residents and visitors attending the sessions of the British Pharmaceutical Conference at Bristol this year to learn the exact circumstances of the connection of the city with the foundation of the Conference at Newcastle-upon-Tyne in 1863. In the *Pharmaceutical Journal* for May, 1863, page 506, Mr. Richard Reynolds suggested that pharmacists should, at the time of the meeting of the British Association at Newcastle in the following August, confer as to the best mode of promoting "systematic scientific inquiry." In the *Journal* for June, page 562, Mr. Henry B. Brady supported Mr. Reynolds; and on page 563 appeared a letter from Mr. George Frederick Schacht referring to his suggestion of "several years ago" that "the annual meetings of the Pharmaceutical Society should be held not always in one fixed place, but in rotation at the various towns of importance where its members resided." In that letter he again urged the adoption of this course. On neither occasion, however, did his views meet with concurrence so far as an annual provincial meeting of the Pharmaceutical Society was concerned, but considerable approval was expressed in 1863 respecting an annual provincial gathering of pharmacists generally, and I may say at once that thereupon Messrs. Reynolds and Brady urged the present writer to join them in starting such a body, and that as a result of a circular we issued on July 21, 1863, fifty prominent pharmacists, including Mr. Schacht, expressed their cordial approval of the scheme, and the present British Pharmaceutical Conference was founded at Newcastle-upon-Tyne on September 2, 1863.

But my present object concerns the connection of Bristol with the birth of the Conference. Until a week or two ago I had been unable to trace any report of the occasion on which Mr. Schacht had urged the holding of provincial gatherings of pharmacists from all parts of the country. He himself was once asked respecting this point, but could not recall the time or place. Recently I searched the early volumes of the *Pharmaceutical Journal*, and in the monthly number for September, 1852, page 123, I found the missing link. It is contained in a report of "a meeting of the chemists and druggists of Bristol and Clifton held at the rooms of the Fine Arts Academy, on the drawbridge, on Monday evening, August 9, 1852, when Mr. Jacob Bell attended to explain the provisions of the Pharmacy Act." I cannot do better than transcribe the remarks which bear on the subject to which attention is now drawn:

"Mr. Schacht said he was anxious to take the present opportunity, which he thought was an occasion favourable for any expression of opinion upon affairs connected with the Society, to suggest the establishment of annual meetings for scientific objects connected with pharmacy which should circulate through the chief towns in the provinces somewhat upon the model of the Provincial Medical Association. He thought that meetings of this character held annually in different localities would have the effect of stimulating the provincial members to a more active co-operation, and that they might often be made highly instructive by selecting as the place of meeting towns which presented peculiar objects of manufacturing interest. He thought, further, that it would be more easy to keep alive the spirit of assemblies of this variable description, as in addition to the attractions which the several districts might present, there would be some local pride to influence the residents in each neighbourhood to support the character of the meeting in which they were most immediately concerned. It was well known that this feeling was strongly entertained in the various towns in which meetings of the British Association and other societies had been held.

"Mr. Bell approved the suggestion of the provincial scientific meetings, and felt sure that the Council would give it their best consideration.

"Mr. R. W. Giles agreed in expecting great benefit from the adoption of Mr. Schacht's suggestion, which he thought would further a scientific taste in the followers of pharmacy. He thought it no inconsiderable merit in the scheme that it would afford a legitimate opportunity of combining technical improvement with that bodily relaxation which close attendance to an exacting occupation restrained to an injurious degree, and he was glad to find that it would have Mr. Bell's support with the Council."

It will be seen that in these extracts from speeches thus delivered at Bristol fifty-one years ago were laid down the principles of (*a*) the fostering of pharmaceutical research and (*b*) the promotion of friendly intercourse among pharmacists, which form the two objects of the organisation termed "British Pharmaceutical Conference," whose members now assemble for the second time at Bristol, forty years after its foundation at Newcastle in 1863.

Personally, I much regret to be absent from the gathering, but at the time and for a few weeks afterward I shall be in the hands of a well-known surgeon, who promises such results as will enable me to attend meetings of the Conference for years to come.

Yours faithfully,

Watford, Herts, July 22, 1903. John Attfield.

The President, referring to the absence of Mr. Martin, Newcastle, regretted that it was due to bereavement, and a vote of sympathy with Mr. Martin on the loss of his wife was passed by the members standing up in their places.

The President also read a characteristic letter from his old friend Mr. Charles Umney.

Mr. Ransom next read the list of

Delegates.

Pharmaceutical Society of Great Britain.—President, Vice-President, Messrs. Cross, Glyn-Jones, Newsholme, Wootton, Gifford, Symes, Cooper.

North British Branch.—Messrs. David B. Dott (Chairman), Thos. Dunlop (Vice-Chairman), W. B. Cowie, W. Cummings, W. Giles, C. Kerr, T. Maben, A. Naysmith.

Pharmaceutical Society of Ireland.—President (Mr. G. D. Beggs), Vice-President (Mr. Johnston Montgomery), Messrs. John Smith, Patrick Kelly, W. F. Wells.

Chemists' and Druggists' Society of Ireland.—Mr. W. J. Gibson (Belfast).

Aberdeen Pharmaceutical Association.—Mr. W. Giles (President).

Bradford Chemists' Association.—Messrs. Arthur Hanson, R. W. Silson

Brighton Chemists' Association.—Messrs. Savage, Yates.

Cambridge Chemists' Association.—Messrs. E. H. Church, E. S. Peck.

Dover Chemists' Association.—Mr. R. M. Ewell.

Edinburgh Chemists', Assistants', and Apprentices' Association.—Messrs. W. B. Cowie, Wm. Duncan, J. Rutherford Hill.

Exeter Chemists' Association.—Messrs. F. W. Vinden, Henry Gadd, J. H. Lake, T. Tickle, R. F. Rowsell, T. C. Milton, and H. Wippell Gadd.

Forfarshire Chemists' Association.—Messrs. A. B. Anderson, Chas. Kerr, Jas. Russell, Wm. Cummings, A. Naysmith, J. H. Thomson.

Glasgow and West of Scotland Pharmaceutical Association.—Messrs. W. L. Currie, R. Brodie, J. Foster, J. McMillan, G. Robertson, T. Maben.

Grimsby Chemists' and Druggists' Association.—Messrs. C Willson, H. W. Colley.

Leeds Chemists' Association.—Messrs. F. W. Branson, F. Pilkington Sergeant.

Liverpool Chemists' Association.—Messrs. R. C. Cowley, Edw. Evans, jun., J. Herbert Evans, C. Symes, John Alexander, P. H. Marsden, J. Shacklady.

London Chemists' Association.—Messrs. R. B. Betty, A. Cooper, W. S. Glyn-Jones, R. H. Jones, W. Watson-Will, F. W. Freeman.

London Chemists' Assistants' Association.—Messrs. C. J. Strother, W. Garsed.

London (Western) Chemists' Association.—Messrs. J. W. Bowen, Frank A. Rogers, W. Prior Robinson.

Manchester Chemists' Association.—Messrs. H. Kemp, Johnston, Pidd, Wild.

Midland Pharmaceutical Association.—Messrs. Gerrard, Alcock.

Newcastle-on-Tyne Chemists' Association.—Messrs. G. F. Merson, Geo. Foggan, T. Maltby Clague, F. Gilderdale.

Oxford Chemists' Association.—Messrs G. C. Druce, H. Mathews.

Plymouth, Devonport, and Stonehouse Chemists' Association.—Messrs. J. Davy Turney, W. H. Woods.

Sheffield Pharmaceutical and Chemical Society.—Messrs. G. T. W. Newsholme, G. Squire, A. R. Fox, H. Antcliffe, F. A. Upsher Smith.

Mr. Peck then read the

Report of the Executive Committee.

During the past year the Executive Committee has met in London on several different occasions. It has to report with profound regret the removal by death of several old and well-valued members of the Conference both at home and abroad—no less than seventeen in all. Amongst the number special mention must be made of F. Baden Benger, who presided at Bath in 1888 with such marked success, and who filled the office of honorary secretary from 1871–1884. His unfailing courtesy and kindliness of manner endeared him to all those with whom he came in contact, and his devotion to the interests of the Conference while in office contributed largely to its success.

The death of John Moss, who held the post of treasurer for five years, and whose contributions of papers were always of great practical value, is also a serious loss. Amongst the other distinguished members who have passed away must be recorded the names of C. R. Blackett, President of the Pharmacy Board of Melbourne; H. Collier, formerly an energetic member of the Executive, and frequent contributor of papers; and G. H. Grindley, of Dublin, who filled the office of auditor. Twenty members have resigned, and over fifty have been elected as new members.

The Research List has again been thoroughly revised, and through the kindness of the editors of the various journals connected with pharmacy has been well circulated.

The Executive wish to take this opportunity of thanking those members who are working out these subjects, and wish also to invite suggestions for new items and offers from those willing to undertake the work.

Two grants from the Research Fund have been made, and the results of the work done will be communicated to this meeting. Mr. W. W. S. Nichols will report upon "Ferri Arsenas, B.P.," and Mr. E. W. Pollard upon "A Spurious Cusparia-bark."

It has been considered by many that the time has arrived when a general index of the *Year-books of Pharmacy* from 1886–1903 should be compiled. Careful inquiries as to cost of production have been made, and a circular issued to each member upon the subject.

The Executive wishes to draw special attention to this, and to express the hope that the response given will be sufficient to warrant them in undertaking the work.

It is with sincere regret that the Executive learns that Mr. F. Ransom feels compelled, by reason of increasing business-engagements, to retire from the Secretaryship—a post he has held for so many years with such marked ability, courtesy, and tact.

The Secretaries have during the past year endeavoured to promote increasing interest in the Conference amongst our colonial friends, and Mr. G. W. S. Rich, of Brisbane, has kindly consented to act as Colonial Secretary for Queensland.

The Executive believes that there is considerable evidence of an increasing desire on the part of pharmacists generally to form a bond of union amongst themselves and the various associations established for the advancement of pharmacy throughout the Empire, and ventures to suggest that one of the best means of attaining this object is to largely increase the membership of the Conference, and trusts that in the coming year more pharmacists, both at home and abroad, may avail themselves of the advantages to be gained thereby.

Mr J. O. Braithwaite remains on as editor of the *Year-book*, and has placed in the hands of the printers the manuscripts of Parts I. to IV. The Executive has entered into a fresh arrangement with the printers, whereby it is hoped that the *Year-book* will be issued somewhat earlier this year.

The Assistant Secretary (Mr. J. Hearn) still continues to carry on his part of the work with interest and care.

The Financial Statement

was next presented by the Treasurer (Mr. J. C. Umney), who said the resources of the Conference were better than usual, a debit balance of 5*l.* or 6*l.* only remaining. The Dundee chemists had made a handsome contribution to the funds of the Conference. The following is an abstract of the accounts :

	£	*s.*	*d.*		£	*s.*	*d.*
To Assets from last year	5	19	8	*By* Bell and Hills Fund ...	27	18	8
Subscriptions ...	388	1	0	*Year-book* ...	338	4	3
Dundee subscribers ...	15	0	0	"Formulary"...	0	6	0
Year-book ...	82	8	4	Sundry expenses	28	9	1
"Formulary"...	3	0	0	Salary and rent	55	0	0
Liabilities ...	151	2	8	Postages ...	14	16	0
Bank allowance	0	0	3	Printing and stationery ...	6	9	11
Bell and Hills Fund... ...	27	17	10	Liabilities of last year since paid	55	8	4
				Churchill's account ...	65	0	5
				Balances at bank and with Sectary	81	17	1
	£673	9	9		£673	9	9

The B.P.C. Research Fund showed a balance of 43*l.* 5*s.*, grants of 2*l.* each having been made to Mr. W. W. S. Nicholls, Brockley, and Mr. E. W. Pollard, Ryde.

The Bell and Hills Fund showed balance from last year 27*l.* 18*s.* 8*d.*, dividend 9*l.* 5*s.* 8*d.*, and the expenditure 9*l.* 6*s.* 6*d.* for books. A balance, 27*l.* 17*s.* 10*d.*, was certified.

Dr. Charles Symes moved that the report and Treasurer's statement should be received and adopted. He said that the report was an exceedingly satisfactory one. It looked as if the Conference was not only holding its own, but was making decided progress. "Nothing succeeds like success"; and they might look for it, as a matter of fact, that as the Conference was progressing and succeeding it would receive considerably increased support. They had added a goodly number of members, not only at home, but members, in the wider sense, of the whole Empire. (Hear, hear.) As to the finances, they were getting now on a satisfactory basis. Not so many years ago he suggested to the Executive that they should increase the subscription, and he felt sure that if that was necessary the money would be readily forthcoming. But there was a feeling—and no doubt it was right—that it was better to leave the matter as it stood and look to some other means to increase their numbers rather than advance the subscriptions in order to place them in an improved financial position; and he hoped that every member felt it incumbent on him to try and secure fresh members.

Mr. G. D. Beggs (President of the Pharmaceutical Society of Ireland) seconded the motion. He said it was a matter of considerable interest that the Conference was extending its borders in the Colonies; and he was sure that the Colonies would take up the good work that the society was doing at home. They very much regretted that they were to lose the valuable and esteemed services of Mr. Ransom. (Hear, hear.) As to their members, although they had suffered the loss of twenty, there were fifty additions, so that there was a net gain of thirty. (Hear, hear.)

Mr. G. C. Druce added his tribute to Mr. Ransom for his valued services, and he hoped that his relinquishing of office might yet be averted. (Hear, hear.) Referring to the Dundee meeting, he mentioned the steps that had been taken to erect a memorial to George Don, the Forfar botanist. He said that from the initiatory step taken by the Dundee Association they had been successful in arranging to put up a monument to the old Scottish botanist in his native town of Forfar. They hoped to have it completed before the end of the year; it would be an appropriate testimony to a worthy man, and it would not do any harm to pharmacy when it was known that its members went out of their way to honour a man not one of themselves, but a well-known botanist, and this was a happy feature of the Dundee meeting. (Applause.)

Mr. Victor Say (Barella, Vic.) was asked to offer a few remarks as representing the Colonies. He thanked the Conference for the cordial greeting extended to him, and said that he had great pleasure in being amongst them.

The resolution was adopted.

Mr. F. C. J. Bird, in the absence of Mr. Martin, read the

Report of the Formulary Committee,

which showed that two meetings of this committee had been held during the year. At the first Mr. N. H. Martin was re-elected Chairman, and Mr. F. C. J. Bird Secretary, in place of Mr. W. A. H. Naylor, who felt unable to continue the duties. Mr. Naylor's services, which were highly appreciated, were suitably acknowledged. A number of formulæ were experimented with between the first and second meeting, and at the meeting in March, 1903, the results were noted and further suggestions made as to working out the details. Regret was expressed that chemists had not, in accordance with suggestions made in the previous reports, sent in any lists of preparations for which formulæ were desired. As but few copies of the last edition of the "Formulary" remain, it was suggested that if the committee is reappointed it should be in a position to go to press with a new edition during the coming year.

International Congress of Applied Chemistry.

Dr. F. B. Power, who officially represented the Conference at the Congress held at Berlin in June, sent in a report upon the matter, in the course of which he said :

> The business of the Congress consisted chiefly in the reading of scientific papers, which were divided among eleven sections, representing the different branches of applied chemistry. Among these, Section 8 was devoted to medical and pharmaceutical chemistry, hygiene, and the chemistry of alimentary products, and the President was Dr. E. A. Merck, of Darmstadt. On account of the diversity of subjects comprised in this Section it was found necessary to divide it into two sub-sections, and of these the one restricted to the consideration of subjects relating more or less directly to pharmacy was presided over by Professor H. Thoms. As it is customary on such occasions to appoint various members of the respective Sections to preside in turn over the sectional meetings, by virtue of the compliment thus bestowed on foreign members the chair was occupied during one of the sessions by your delegate, and on the following day by Mr. Peter MacEwan. This occasion afforded me the opportunity of presenting the official greetings of the British Pharmaceutical Conference, as a representative organisation of British pharmacy, which were most cordially received. In considering the results of such gatherings, it may safely be concluded that, while many of the scientific papers presented are of permanent and substantial value, one of the by no means least important benefits accruing therefrom is the opportunity which they afford for the renewal of old friendships or for forming anew the personal acquaintance of those of different nationalities who are engaged in similar studies or pursuits, and are animated by the same desire for the promotion of science. Similar advantages are certainly to be derived from the less pretentious, though none the less enjoyable, annual meetings of our own Conference.

The President briefly thanked Dr. Power for his services to the Conference in this matter. This finished what may be called the preliminary proceedings, and at 12.10 the President called upon for the first paper on the list, viz. :

Preparation of Absolute Alcohol.

By Professor Sydney Young, D.Sc., F.R.S.

It is well known that the strongest spirit obtainable by distillation with the most perfect still-head contains less than 96 per cent. by weight of pure alcohol.

In order to remove the remainder of the water, dehydrating agents have always been used, but they do not give very satisfactory results. According to Mendeléeff, freshly ignited lime is the only agent by means of which pure dry alcohol can be prepared from strong spirit, and, even with this substance, special precautions must be taken to ensure success. More recently, Squibb obtained alcohol of lower sp. gr. than Mendeléeff by the long-continued action of lime in a percolator; but his results, unlike those of the great Russian chemist, were somewhat variable, and there is very little doubt that a small amount of ether was formed.

The new method of dehydration depends on the following facts: When a mixture of alcohol, benzene, and water is distilled, separation tends to take place into—

(1) A ternary mixture of alcohol, benzene, and water, which boils constantly at 64·85°.

(2) A binary mixture of two of the three original components.

(3) That pure component which was in excess.

The boiling-points of all possible components separable by distillation, and the percentage composition of the mixtures of constant boiling-point are tabulated below (A. = alcohol; B. = benzene; W. = water):

	Boiling-point	Percentage composition		
		A.	B.	W.
A.B.W.	64·85	18·5	74·1	7·4
A.B.	68·25	32·4	67·6	—
B.W.	69·25	—	91·2	8·8
A.W.	78·15	95·6	—	4·4
A.	78·3	100	—	—
B.	80·2	—	100	—
W.	100·0	—	—	100

When a mixture of equal weights of, say, 94-per-cent. alcohol and benzene is distilled through a very efficient still-head, the components which can be separated by fractional distillation are (1) the ternary A.B.W. mixture, containing, theoretically, the whole of the water; (2) the binary A.B. mixture, containing the remainder of the benzene; (3) pure alcohol. We thus get the remarkable result that the least volatile of the original components—water—comes over in the first part of the distillate; while the most volatile component —alcohol—remains until the last.

Benzene and dilute alcohol are easily recovered from the ternary mixture by treatment with water; and by distillation of the dilute alcohol strong spirit may again be obtained.

The binary mixture may be treated in the same way, or it may be added to a further quantity of strong spirit when it is to be dehydrated.

There is practically no loss either of alcohol or of the dehydrating agent, benzene; and, since no chemical action can take place between the substances present, there is no fear of impurities being introduced.

Theoretically, a single distillation should be sufficient to remove the whole of the water; but the separation is difficult on account of the small difference between the boiling-points of the ternary and binary mixtures, and, even with a very efficient still-head, a second, or possibly a third, distillation with benzene is necessary. The water may thus be completely eliminated, but there appears to be a minute trace of benzene left in the alcohol, too small to be detected by any chemical process. This may be completely removed, if necessary, by distilling the dehydrated alcohol with normal hexane; the binary hexane-alcohol mixture, which comes over first, carries the benzene with it, and no hexane is left in the residual alcohol.

The sp. gr. of the alcohol dehydrated in this manner, agrees very well indeed with that observed by Mendeléeff, as will be seen from the table below:

Observer	Dehydrating-agent	Sp. gr. at 4° C.
Mendeléeff	Lime	0·80625
Young	Benzene	0·80634
Young	Benzene and hexane	0·80627

In order to obtain satisfactory results the benzene must be pure, and it is absolutely necessary to employ a very efficient still-head.

Professor Young elaborated this general statement, and by means of diagrams and still-heads showed the theory and practice of the process fully. He occupied fully three-quarters of an hour.

Discussion.

On the President inviting discussion,

Mr. T. Tyrer expressed the indebtedness of the members for the demonstration, so much enhanced by the fact that the actual pieces of apparatus were before the meeting. Some of those present would no doubt be slightly tickled by the discovery that these delicate pieces of apparatus were described as "still-heads"—an absolutely correct term, as is proved by the fact that these small apparatuses of research are the models of the larger pieces used on a manufacturing scale. Mr. Tyrer then referred to the experiments of the late Dr. Squibb. He had, when in the United States, the pleasure of seeing the wonderful pieces of apparatus which Dr. Squibb had used. Amidst all the care and the adaptations of scientific means to scientific ends, he (the speaker) was struck with the deep anxiety which Dr. Squibb betrayed because he had not been able to attain perfect results with absolute alcohol. The remarks which Dr. Young made in his paper before the Royal Society on the purification of methyl alcohol had been of great assistance to him (the speaker). To effectually purify methyl alcohol is no easy matter, but, from the experiments suggested by Dr. Young of using benzene for the removal of water from alcohol, he (the speaker) had been able to adopt the process on a large scale. The great point to aim at in the still-heads is to give the largest possible surface without unduly constricting the passage of the uncondensed products.

Dr. Young said he was interested in hearing about Dr. Squibb. He thought that that investigator failed in his purpose because of his too great carefulness. The action of the lime which he used by percolation for dehydrating was a little too energetic: it slightly oxidised the alcohol and produced a little ether.

Mr. Tyrer added that he remembered Dr. Squibb's lady assistant (she was marvellously accurate in taking sp. grs. and temperatures) remarking, when speaking of the slight impurity remaining in the alcohol, "You know we found ether."

On the motion of the President, Dr. Young was thanked for his paper.

The meeting then adjourned for luncheon.

Second Session.

The meeting was resumed shortly after two o'clock in a class-room adapted for a lantern-demonstration to illustrate a paper on

Pharmaceutical Institute of the University of Berlin.

By Professor H. Thoms, Ph.D.

This communication accompanied a set of lantern-slides which were exhibited by Mr. MacEwan, the communication consisting of racy notes descriptive of each slide. The Pharmaceutical Institute referred to was opened in October of last year as a department of the University of Berlin, and is devoted to giving students of pharmacy who are proceeding to the State examinations instruction in pharmaceutical subjects while they continue to get the more scientific courses, such as those in chemistry by Professor Emil Fischer, at the Chemical Institute in Charlottenburg. The institution is situated in Dahlem, a suburb of Berlin, and is within the grounds of the Berlin Botanical Gardens. Professor Thoms is the director of the Institute.

The slides commenced with several views showing the approach to the Institute through the Botanic Gardens, in which flora native to nine geological formations are represented. In succession views were shown of the front of the Institute and the various departments within, consisting of the director's private laboratory, the laboratories for organic, qualitative, and toxicological chemical work, weighing-rooms and dark-rooms on the first floor. The largest laboratory of the Institute is situated on the second floor and accommodates seventy-two workers. Beside this is a small lecture-hall or tutorial room giving accommodation to sixty-one students. Other slides showed the equipment of the machinery-room, a manufacturing-room where all the processes for the production of galenicals are conducted on a fairly large scale, the apparatus consisting of grinding and sifting machinery, steam-pans, vacuum-apparatus, and stills; and in contrast to these a series of slides were shown which depicted old-time distilling-apparatus reproduced from Peters's well-known historical work.

work. The lecture was an object-lesson in the thoroughness with which educational matters are undertaken in Germany.

Discussion.

The President having invited discussion,

Dr. Power said that he might add a word to the very excellent presentation of the subject. He had the pleasure of visiting the Institute with Mr. MacEwan, and he was sure it was a delight to them all to see the very admirable and beautiful equipment of the place. It was certainly to be regarded as the best that now exists in Germany, and perhaps it is not exceeded in any country.

Dr. Symes said that Mr. MacEwan mentioned that distilled water, if it required anything further to render it pure, was passed through sand and coke. No doubt the authorities had found by experience that distilled water passed through sand and coke was purer than before, but he would have expected to have found it rather contaminated. Had it struck Mr. MacEwan to make any inquiry on the point?

Mr. MacEwan replied that he had not made special inquiry about the matter, but he presumed that the filtering-material would be well washed before the distilled water was passed through it. Such filtration was not uncommon, as distilled water frequently contains ammonia, which is removed through surface-contact with the coke. But that was a matter upon which the President of the Conference was as qualified to speak as anyone.

The President said he had found that unless one got water perfectly pure to start with, one distilled not only the water but the impurities and organisms in it. The operation that went on became, in fact, a sort of destructive distillation, and a tarry or oily matter came over which is not generally recognised. The only way in which they could make sure of distilled water being free from that peculiar oily matter with which they were acquainted was by passing it through coke or through charcoal filters. Wood charcoal answered very well; animal charcoal answered better, but there was objection that it yielded calcium phosphate to the water. If they started with the purer water, free from organic matter, they were better off; but in nearly all that sort of water albuminoid ammonia was present.

Mr. T. Tyrer recalled a conversation he had had with the late Mr. Wm. Martindale, who, after a visit to Marburg University, had told him he would never be satisfied until he had laboratories in Bloomsbury Square such as were there. Mr. Tyrer said no more fitting memorial to Mr. Martindale and his work than that could be founded. (Hear, hear.)

Dr. Symes supported Mr. Tyrer's remarks. He said that ten years ago he was very strong on having a practical pharmacy laboratory in Bloomsbury Square, where any of them could go and see apparatus on a small scale doing good work, and where they could be informed of its capabilities, and so on. (Hear, hear.) He felt that day strongly that this had never been carried out. When the research laboratory was instituted—it seemed to be doing better work now—it did little for the useful purposes of the pharmacist, although it contributed towards the advancement of some scientific men. (Laughter, and "Hear, hear.") When he strongly pressed that the basement at the Square might be allowed for pharmacy purposes, that place was called "Symes's playground"—(laughter)—but there was never any play there; there was never the play he intended. Now that the subject came up from outside, instead of being introduced by a member of the Council, something, perhaps, would be done. Something ought to be done. (Applause.) There was no place in this country where one could go and get a disinterested person to explain apparatus. Manufacturers would tell them about apparatus, but they wanted an independent opinion and the practical use of pharmacy apparatus, so that they would be able to gain the information they wanted when fitting up a laboratory.

Mr. H. Wippell Gadd asked how funds are provided for the Berlin Institute.

Mr. MacEwan replied that it is part of the University for Berlin. German people are more given than we are to looking to the Government for help. We prefer to pay as we go along. The Institute is mainly supported by the University of Berlin, which in its turn has a yearly grant from the German Government. Students pay comparatively modest fees. The year's curriculum generally comes to about 10*l.* The number of students at present is not very large. The Institute was built not for to-day, but for the next generation.

Mr. Druce said that other towns are doing similar work, and he had been much struck with what is going on at Buda Pesth. Compared with that, one was ashamed of the backward condition of teaching in England. When at the institution to which he referred he went to the botanical class, where more than half the students were studying for pharmacy. They were sitting side by side with students going in for the medical profession, doing the same work and studying equally with them. It was very pleasing to see such a method of teaching adopted. (Hear, hear.) He hoped the time was not far distant when, instead of frittering away our resources, there would be some comprehensive method of doing our educational work. (Hear, hear.)

Mr. C. Kerr (Dundee) said that he was in Beyrout last spring and was taken through the American Mission College, where there was a laboratory for pharmacy students. It was a special department. He was very much struck with the beauty of the apparatus and the manner in which the rooms were laid out. The information he got was that two years' curriculum in pharmacy is given at 10*l.* a year, and if the student lived in the College the charge is 30*l.* a year. This College is supported by voluntary contributions from America, and it is an example of independence instead of Government support, which is very much to be approved of.

The President said that he had found in Egypt a number of pharmacists from that College who had been well educated. But in the College students are not educated from the same point of view as in this country: they are prepared for missionary work. He expressed the thanks of the Conference to Mr. MacEwan for his able lecture, which had elicited a very interesting discussion, and which had been beautifully illustrated. (Applause.)

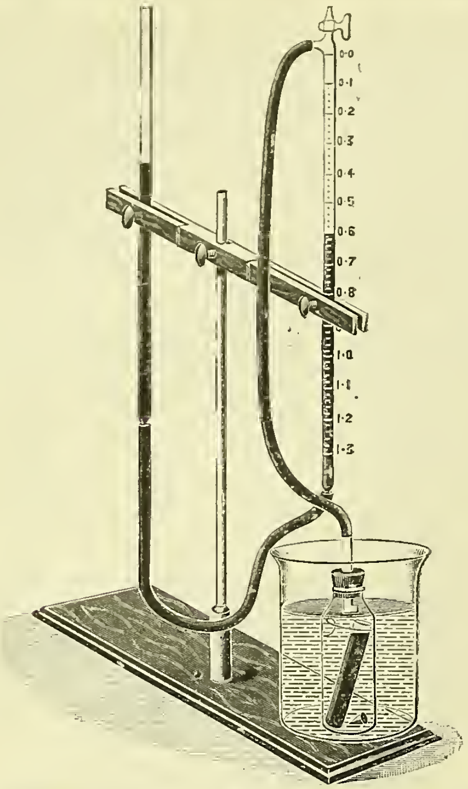
The members then returned to the larger lecture-hall upstairs, when the following paper was read:

Determination of Uric Acid in Urine.

By A. F. Dimmock, M.D., M.R.C.S., L.S.A., Medical Officer of the Harrogate Infirmary, and F. W. Branson, F.I.C., F.C.S.

The authors have devised the following method, which has been found to work easily:

One hundred cubic centimetres of the urine is taken, and warmed to about 40° C., then saturated with 31 grams of ammonium chloride, the whole being well shaken in a stoppered measuring-glass, graduated at 100 c.c, until the ammonium chloride is dissolved. The contents will now be at a temperature of about 15° C., and should be left for at least two hours (preferably twelve) for the precipitate of ammonium urate to subside. Should any of the precipitate have a tendency to remain near the surface, gentle rotation of the measuring-glass causes it to settle. The supernatant liquid is then poured off, and the portion left is carefully filtered through a filter-paper, diameter about 5½ cm., as by Hopkin's method. The precipitate is then carefully washed with a little dilute solution of ammonia, consisting of 1 part liq. ammon. fort. in 1,000 of distilled water. Washing is best done in the following manner: Allow the liquid to drain from the precipitate, then fill the filter-paper with the dilute ammonia-solution, contained in a wash-bottle. Allow this to drain off, and again fill the filter-paper with the ammonia-solution. Repeat this operation a third time. Test some of the filtrate with a 5-per-cent. solution of silver nitrate, acidulated with nitric acid (5 per cent.). Only a very slight precipitate should be given, indicating the absence of any appreciable amount of ammonium chloride, but should the filtrate still contain this salt, wash with a small additional amount of dilute ammonia-solution. Place the precipitate, with the filter-paper, in the generating-bottle; fill the tube up to the mark (25 c.c.) with the hypobromite-solution, and lower it into the bottle (as in illustration shown) by means of a piece of string. Note the temperature of the hypobromite-solution, which should approximate to that of the room in which the estimation is to be made. Now place the cork in the generating-bottle and plunge the bottle in a vessel of cold water, temperature similar to that of the hypobromite-solution. After two minutes adjust the water level in the measuring-burette to zero, then close the tap, and note that the water-level remains constant. In order to test if leakage occurs in any part of the apparatus, alter the water-level in the measuring-burette; any defect is then easily seen. Finally, tilt the generating-bottle, and allow the reagent to flow out of the tube, and shake so as to promote the reaction between the sodium hypobromite and the ammonium urate. After ten minutes, during which time the bottle should be shaken at intervals, the level in the two tubes is adjusted, and the percentage of uric acid read off, as indicated by the nitrogen evolved.



The process appears to be quite suitable for proportions of uric acid ranging from 1 in 1,000 to 1 in 10,000. The factors for the graduation of the burette (parts per 1,000) have been obtained by means of numerous estimations of solutions prepared from pure uric acid (urea, 2 per cent.) and normal phosphates, chlorides, and inorganic constituents. Six estimations of 100 c.c. of a solution containing 0·6 c.c. of uric acid per 1,000 gave a mean of 8·5 c.c. of nitrogen.

By the addition of a second scale (graduated in parts per 100) to the burette, the instrument may be used as a ureameter, 2 c.c. of urine being taken for each estimation. This quantity is transferred by means of a pipette to the generating-bottle, in which is placed a tube containing 25 c.c. sodium-hypobromite solution. The subsequent procedure is the same as for the estimation of uric acid. The solution of hypobromite of soda is made by dissolving 100 grams of caustic soda in 250 c.c. of water, then adding 22 c.c. of bromide.

Discussion.

Mr. Naylor inquired what strength of liq. ammon. fort. was used—880 or the fortior of the Pharmacopœia. No experiments appear to have been made to prove the absolute insolubility of the ammonium urate in the ammonia solution.

Mr. Allcock said there was one very important omission in the process: the amount of wash-water was not stated. It is generally concluded that the precipitate is ammonium urate, but he wanted to know if it had been shown to consist solely of ammonium urate, or if creatin or creatinin were present.

Mr. Branson, in reply, said he worked with a solution of ammonia of the strength 1 in 10,000, as stated in the paper. As to the strength of liq. ammon. fort., he thought it was conceded that the 880 strength is not now found in commerce to any extent. When one ordered it from manufacturers they sent a polite letter, but did not send 880 ammonia. In regard to Mr. Allcock's question, he said it is generally assumed by many observers that the precipitate is acid urate of ammonium. When working out the process he (the speaker) found that he got, working separately but under similar conditions, concordant results as Dr. Dimmock. Uniformity in bulk of wash-water should be aimed at. The precipitate of sodium urate from a 1-in-2,000 solution can be readily washed with 80 c.c. of water. If the size of filter-paper mentioned in the paper is used and filled up with water three times, as directed, a definite volume of water is used. The filter-paper becomes a sort of measure.

Mr. Naylor pressed his question as to the gravity of the liq. ammon. fort. used, and

Mr. Branson replied that it was of the pharmacopœial strength.

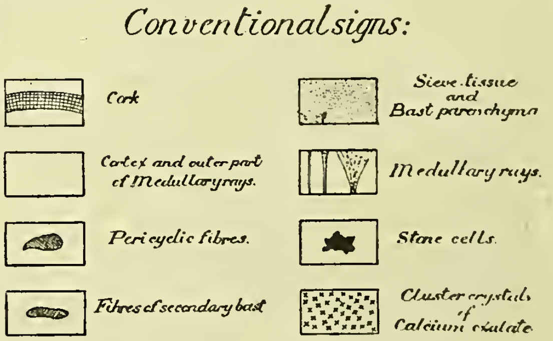
In the absence of the author, Dr. F. B. Power briefly commented upon a communication from the Wellcome Chemical Research Laboratories, of which the following is an abstract:

Comparative Anatomy of the Barks of the Salicaceæ.—Part I.

By Pierre E. F. Perrédès, B.Sc., F.L.S., Ph.C.

The general anatomical features of the barks in the natural order were first considered in this communication. These general considerations were followed by the systematic examination of the barks of the following eleven species of *Populus*: *P. tremuloides*, *P. alba*, *P. grandidentata*, *P. canescens*, *P. tremula*, *P. balsamifera*, *P. angustifolia*, *P. deltoides* (= *P. monilifera*, Ait.), *P. pyramidalis*, *P. nigra*, and *P. Fremonti*. The whole account was concluded with the analytical key (see page 228) to the poplar-barks mentioned, detailed consideration of the willow-barks being reserved for Part II.

The communication was accompanied by figures of the transverse sections of the barks described, and we reproduce these with the author's descriptions. These figures are but slightly smaller than the originals, and we have endeavoured to get them as far as possible contiguous with the inscriptions.


Conventional signs:
Cork
Sieve tissue and Bast parenchyma
Cortex and outer part of Medullary rays.
Medullary rays.
Pericyclic fibres.
Stone cells.
Fibres of secondary bast
Cluster crystals of Calcium oxalate

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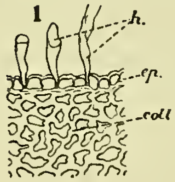

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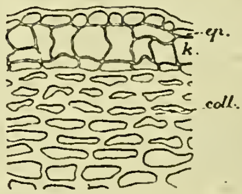

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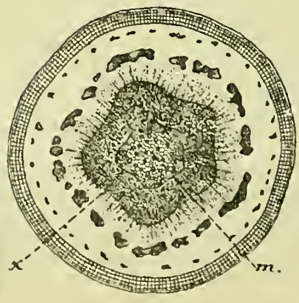

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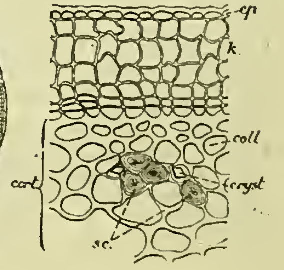

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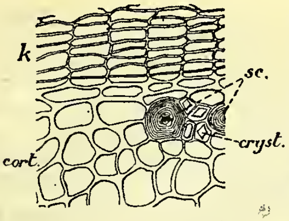

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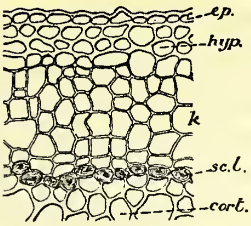

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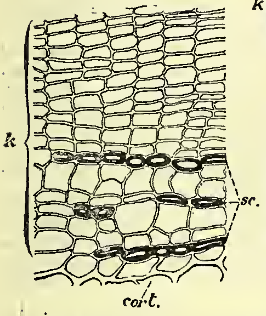

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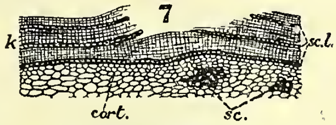

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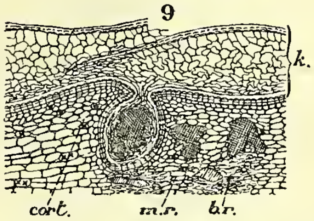

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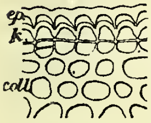

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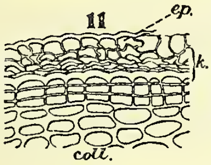

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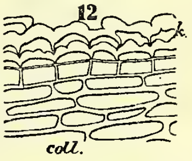

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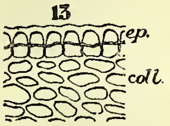

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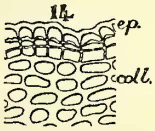

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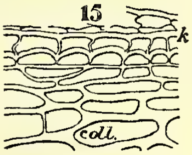

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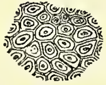

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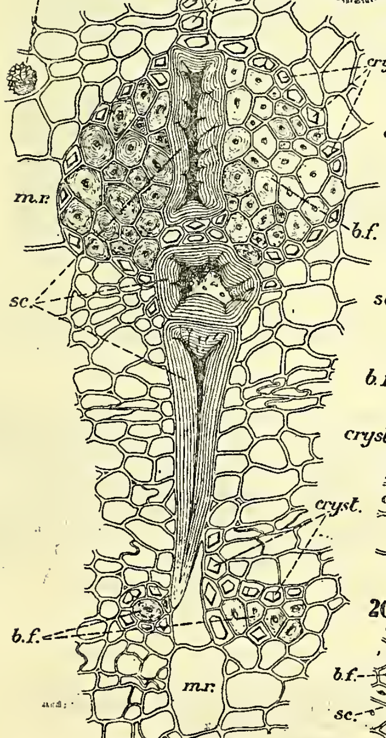

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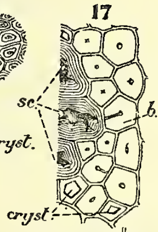

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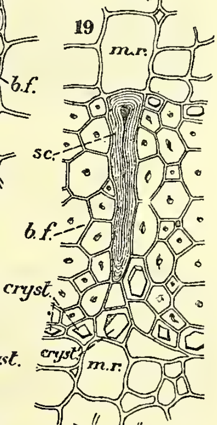

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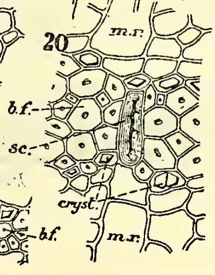

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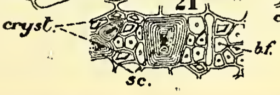

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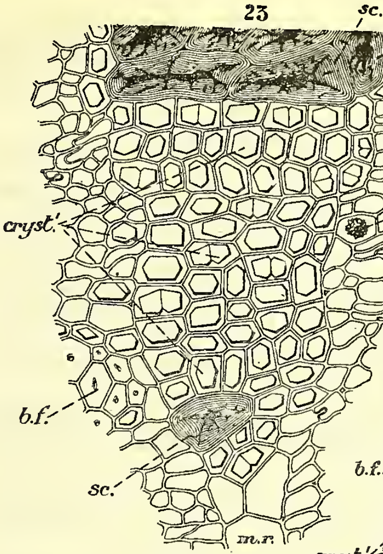

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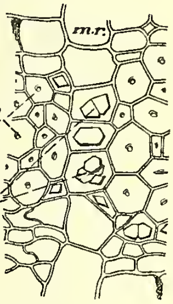

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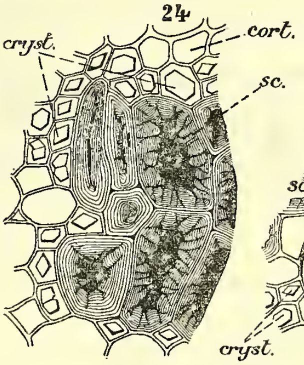

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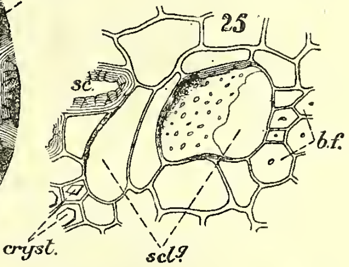

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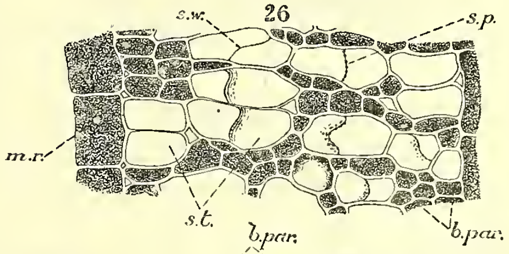

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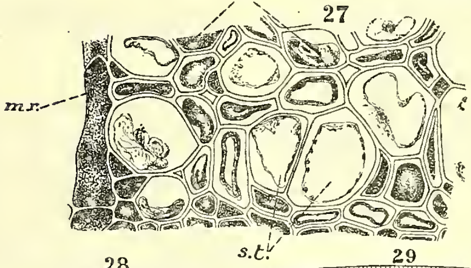

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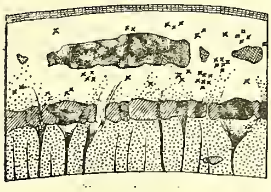

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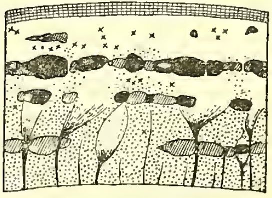

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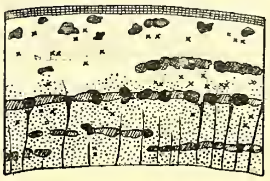

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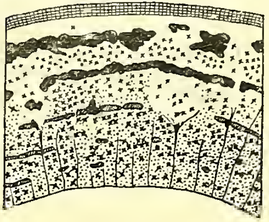


Fig. 1.—Section through epidermis and outer portion of cortex of first year's twig of *P. alba*: *h.* hairs, *ep.* epidermis, *coll.* collenchyma. × 200 diameters.

Fig. 2.—Section through a somewhat older twig of same: *k.* periderm or cork, other lettering as before. × 200 diameters.

Fig. 3.—Section through outer part of bark of a one-year-old twig of *P. angustifolia* (that shown in fig. 4): *cort.* outer portion of cortex, *cryst.* prismatic crystals of calcium oxalate, other lettering as before. × 200 diameters.

Fig. 4.—Section through a one-year old twig of *P. angustifolia*: *x.* wood, *m.* pith. For explanation of other structures see conventional signs. × 30 diameters.

Fig. 5.—Section through periderm and outer part of cortex of older bark of *P. angustifolia*: lettering as before. × 200 diameters.

Fig. 6.—Section through a one-year old twig of *P. Fremonti*: *hyp.* hypoderma, *sc.l.* sclerenchymatous layer limiting cork internally, other lettering as before. × 200 diameters.

Fig. 7.—Section through periderm and outer portion of cortex of older bark of same: *sc.l.* concentric sclerenchymatous layers in periderm, other lettering as before. × 75 diameters.

Fig. 8.—Section through a copiously developed periderm of *P. deltoides*: *sc.* tangential bands of stone cells in the periderm, other lettering as before. × 200 diameters.

Fig. 9.—Section through outer part of bark of a two-year-old twig of *S. Wardi*: *k.* outer bark, consisting largely of cork, *m.r.* medullary ray, *b.r.* bast-ray, other lettering as before. For structures not lettered see conventional signs on Plate I. × 75 diameters.

Fig. 10.—Section through outer part of bark of *S. alba*: lettering as before. × 200 diameters.

Fig. 11.—Section through outer part of bark of a one-year-old twig of *S. Wardi*: lettering as before. × 200 diameters.

Fig. 12.—Section through outer part of an older bark of *S. purpurea*: lettering as before. × 200 diameters.

Fig. 13.—Section through outer part of bark of a first year's twig of *S. viminalis*: lettering as before. × 200 diameters.

Fig. 14.—Section through different part of the same twig: lettering as before. × 200 diameters.

Fig. 15.—Section through outer part of older bark of same species: lettering as before. × 200 diameters.

Fig. 16.—Pericyclic fibres of *P. tremuloides*. × 300 diameters.

Fig. 17.—Section through portion of mixed sclerenchymatous ring of *P. tremuloides*: *b f.* bast-fibres, other lettering as before. × 300 diameters.

Fig. 18.—Section through portion of bast of *P. tremula*, showing abnormal development of sclerenchyma (*sc.*): *cryst.* prismatic crystals of calcium oxalate in medullary rays, *clust.* cluster crystal of calcium oxalate. × 380 diameters.

Figs. 19 and 20.—Sections through lignified parts of medullary rays between fibre-groups in *P. angustifolia*: lettering as before. × 380 diameters.

Fig. 21.—Section through bast-fibre groups enclosing stone cells in *P. nigra*: lettering as before. × 330 diameters.

Fig. 22.—Section through part of medullary ray of *P. angustifolia*, provided with prismatic crystals of calcium oxalate between two bast-fibre groups: lettering as before. × 380 diameters.

Fig. 23.—Section through a sclerotic mass from a medullary ray of *P. tremula*: lettering as before. × 380 diameters.

Fig. 24.—Section through portion of a stone-cell group from the cortex of *P. canescens*: lettering as before. × 380 diameters.

Fig. 25.—Section through part of bast of *P. alba*, showing cells in the process of becoming sclerotised (*sclg.*): other lettering as before. × 380 diameters.

SALICACEÆ.

- *Populus.* Stone cells invariably present in the bast. Periderm never possessing cells whose walls are thickened on the outer side only, these thickenings being suberised but not lignified.
  - Forms in which layers of bast-fibre groups form nearly continuous mixed rings, with stone-cell groups in the first or second layers from the pericycle, and with few crystals of calcium oxalate in the inner part of the bast.
    - Extensive mixed sclerenchymatous bands in the pericycle.
      - Narrow cortex with little sclerenchyma. *P. tremuloides.*
      - Wide cortex with much sclerenchyma. *P. grandidentata.*
    - Mixed sclerenchymatous bands in pericycle rarely developed.
      - Outermost layer of bast-fibre groups combining to form a nearly continuous mixed ring with stone cells. Cluster crystals rare in cortex. *P. alba.*
      - Outermost layer of bast-fibre groups never combining to form a nearly continuous mixed ring with stone cells. Cluster crystals abundant in cortex. *P. balsamifera.*
  - Forms in which nearly continuous mixed sclerenchymatous rings in either of the two outer layers of bast-fibre groups, and paucity of cluster crystals in inner portion of bast do not occur together.
    - Stone cells in abnormal positions. Medullary rays and bast-rays very sharply marked off, and cluster crystals fairly abundant in inner part of bast-rays.
      - Concentric rows of stone cells present in cork. No abnormal sclerotic developments in the medullary rays. *P. Fremonti.*
      - No concentric rows of stone cells in cork. Medullary rays abnormally sclerotised. *P. tremula.*
    - Stone cells in abnormal positions. Sharp bast and medullary rays, and fairly abundant cluster crystals in inner parts of bast-rays, do not occur together.
      - One-rowed portions of medullary rays broad and distinct.
        - Groups of bast-fibres in closely approximated bands internally. Groups commonly 65μ thick. *P. angustifolia.*
        - Groups of bast-fibres not uncommonly suppressed internally. Groups rarely over 40μ thick, usually about 21μ. *P. nigra.*
      - One-rowed portions of medullary rays, narrow or indistinct.
        - Cortex excessively sclerotic, bands may attain a tangential extension of 3·25 mm., and a thickness of 210μ. *P. canescens.*
        - Cortex only moderately sclerotic, aggregations of stone cells not above 200μ in tangential direction and 105μ in thickness.
          - Outermost layer of bast-fibre groups, usually twice the size of those internal to it. Suppression of bast-fibre groups extensive. *P. deltoides* (*P. monilifera*, Ait.).
          - Outermost layer of bast-fibre groups not normally much exceeding in size those internal to it. Tangential banding of fibrous layers well marked. *P. pyramidalis.*
- *Salix.* Stone cells invariably absent from the bast. Periderm always possessing cells whose walls are thickened on the outer side only, these thickenings being suberised but not lignified.

Fig. 26.—Section through portion of soft bast of *P. tremuloides*: *s.t.* sieve-tubes, *s.p.* sieve-plate, *s.w.* partition between adjoining sieve-tubes not showing sieve-plate, *b p.* bast-parenchyma, other lettering as before. ×380 diameters.

Fig. 27.—Section through portion of bast of *P. alba*: lettering as before. ×500 diameters.

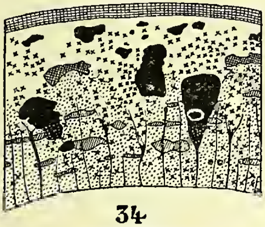
Fig. 28.—Section through bark of *P. tremuloides*. ×28 diameters. Conventionalised: for explanation see Plate I.

Fig. 29.—Section through bark of *P. alba*. ×28 diameters. Conventionalised as before.

Fig. 30.—Section through bark of *P. grandidentata*. ×28 diameters. Conventionalised as before.

Fig. 31.—Section through bark of *P. canescens*. ×28 diameters. Conventionalised as before.

32



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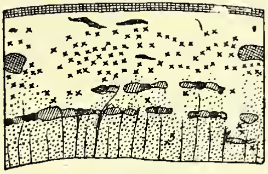

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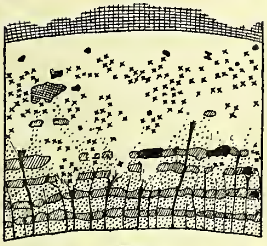

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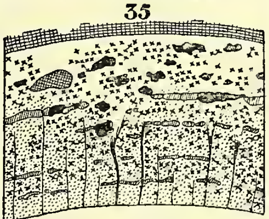

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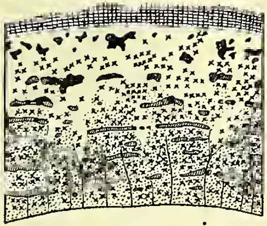

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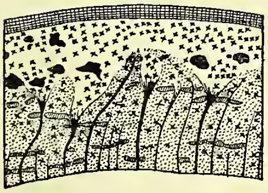

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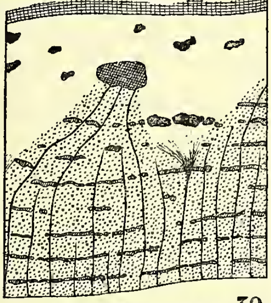

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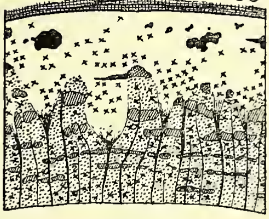

Fig. 32.—Section through bark of *P. tremula*. ×28 diameters Conventionalised as before.

Fig. 33.—Section through bark of *P. balsamifera*. ×28 diameters. Conventionalised as before.

Fig. 34.—Section through bark of *P. angustifolia*. ×28 diameters. Conventionalised as before.

Fig. 35.—Section through bark of *P. deltoides* (*P. monilifera*, Ait.). ×28 diameters. Conventionalised as before.

Fig. 36.—Section through bark of *P. pyramidalis*. ×28 diameters. Conventionalised as before.

Fig. 37.—Section through bark of *P. nigra*. ×28 diameters. Conventionalised as before.

Fig. 38.—Section through older bark of same. Cluster crystals of calcium oxalate not shown. ×28 diameters. Conventionalised as before.

Fig. 39.—Section through bark of *P. Fremonti*. ×28 diameters. The darkest lines in the cork are rows of stone cells; otherwise conventionalised as before.

Dr. Power congratulated the Conference on receiving a communication of this character. For the work which is involved by it there are few men who have the requisite qualification, and still fewer who have the patience and perseverance of Mr. Perrédès.

These remarks were supplemented by Mr. Holmes, who claimed Mr. Perrédès as a product of Bloomsbury Square.

Willows Used in Pharmacy.

By E. M. Holmes, F.L.S.

Comparatively little information concerning willow-bark is given in materia medica works, and less about the bark from which salicin is commercially obtained. The author of this paper has endeavoured to ascertain why the bark is usually imported instead of being obtained in this country, and the results of his inquiries were embodied in this paper. In the Court of Session, Edinburgh, it was stated recently that *Salix fragilis* is the species generally used for the manufacture of salicin, although other species, especially those allied to *Salix purpurea*, yield a larger percentage of it (see *C. & D.*, January 10, 1903, page 46 *et seq*). The author finds that British growers of willows for basket-manufacture cultivate a large number of varieties, which they know only by trade-names. The shoots are usually cut down every year if required for basket or chair making, or every two years if required, for splitting, to make bands for casks, &c. As the plants rarely flower until they are three years old or more, there is little chance of identifying them botanically unless they are cultivated in a garden. It is, therefore, difficult to ascertain what are the botanical species or varieties actually under cultivation in this country. Different species of the genus *Salix* are known respectively as willows, osiers, and sallows. The term "willow" is generally applied to the species that form trees, even when they are pollarded close to the ground and grown as shoots and osiers 6 to 9 feet long. The name "osier" is especially applied to forms and hybrids of the species *Salix viminalis*, which grow readily into long rods or shoots almost without lateral branches. The name "sallow" is given to willows that have a shrubby growth and more or less broad, downy leaves. The author's observations are embraced in the following notes:—

Tree or Cultivated Willows.

Salix alba.—The white willow. Trunk grows about eight feet, and is then pollarded. Common along the banks of canals and ditches in marshy land. Leaves have a white silvery appearance. Heartwood of trunk tough and white. The wood is used for making artificial limbs and chip boxes. The latter are made in Hamburg, where the wood is cut up in factories and served out to workpeople, who make the boxes at home. The wood is in considerable demand for making cricket-bats. It is worth about 5s. per cubic foot, and the demand is greater than the supply. When pollarded the trees soon rot and become hollow.

Salix fragilis.—Commonly called the "brack-willow," because in springtime slight pressure causes the branches to break off from the stem. Wood is red (hence "red willow"). The name "*Salix rubra*" has more recently been given to a hybrid between *S. purpurea* and *S. viminalis*.

Salix triandra.—This willow and its hybrids and varieties are the principal willows grown in this country for white basket-work.

Osiers.

Salix viminalis is the type of the osiers. The leaves are long very tapering, rolled back slightly at the edge, and white and downy beneath; whilst those of *S. triandra* have a green appearance and are neither silvery nor white. The true osiers are chiefly used for hampers and brown wickerwork.

S. vitellina is readily recognised by the bright-yellow colour of the bark of the annual shoots. Used for binding-purposes in horticulture and agriculture.

Salix purpurea.—The typical plant is a bush with branches spreading downwards, and forms only comparatively short shoots. A hybrid of this species with *S. viminalis*, known as *S. rubra*, has, however, upright long shoots, and is one of the finest, most pliable, toughest osiers, and one of the whitest when peeled. Used on the Continent for the finest fancy basket-work. The bark contains a large proportion of salicin. All the varieties of this species have the leaves nearly opposite and stipules, if any, very small and linear; they are usually absent in the typical form of the species. Not much cultivated in this country.

Salix acutifolia (Russian willow).—A quick-growing species which produces long rods suitable for basket-work chairs. Grown more freely on the Continent than in this country. Has a purplish-black bark with a whitish, waxy bloom.

Salix pentandra.—A broad-leaved, fragrant species growing wild in the North of England. Sometimes used in Yorkshire for coarse basket-work.

The large proportion of willows grown in this country are derived from *S. viminalis* and its varieties for hampers and work made of unpeeled osiers, and from *S. triandra* and its varieties for work made from peeled osiers, the finest qualities of peeled osiers being imported from the Continent. *S. viminalis* and *S. vitellina* contain no salicin, and the osiers are not peeled, so that the bark is not a waste-product. *S. triandra* does not afford salicin. *S. pentandra*, which contains salicin, is not usually peeled; and neither *S. purpurea*, *S. rubra*, nor *S. fragilis* appears to be grown to any extent. The bark obtained from the manufacture of buff rods, largely used for chairmaking, is of no value, as the rods are dyed by boiling them in the bark for eight or nine hours, so that any salicin they might contain would be boiled away. The osiers, or long shoots from the stocks, are generally cut in autumn and placed in ditches until April, May, or June; then peeled if required. The bark naturally loses salicin in this way. The bark also loses salicin by keeping, probably owing to an oxydase or other ferment. As fresh bark gives the best yield of salicin, a combination of manufacturers has set up chemical-works close to the area of production in Belgium.

The author concluded by referring to work which has been done at Kew in the identification of salicin-yielding osiers, those determined being *Salix triandra*, *S. purpurea* (var. *Forbyana*), and *S. fragilis* (var. *decipiens*). He also thanked various gentlemen for assistance.

Mr. Holmes added that since the paper was written, he had received a letter from Messrs. Prater, of Birmingham, in which they say the secret of osier-growing is to keep the beds clean and to exercise care in making the willows into bundles for the market.

Discussion.

Mr. Druce said that whenever Mr. Holmes takes up a botanical subject, he always sheds some light on it. The *Salicaceæ* are a troublesome order to the botanist, containing numerous species and hybrids. The order is a veritable stumbling-block to the beginner. The conclusion he (the speaker) had come to was that botanists must not be too sparing in their species. *Salix vitellina* differs from *Salix alba*, the one containing salicin and the other none, which strengthens the idea that they are two different species and not simply two forms. The Kennett Valley, in Berkshire, is noted for its cultivation of the purpurea willow. It is grown for basket-making. There is no doubt that willow-growers in England have neglected *Salix rubra*, Hudson, which is a good salicin-producer, as well as suitable for basket-making. He (the speaker) knew a little about willows, as it happened that when he was Sheriff of Oxford one of the few perquisites he had was the cutting of the willows in the meadows. The willows were cut once in two years, but he confessed they were badly kept. One of the few industries carried on at Oxford is the manufacture of cricket-bats from *Salix alba*, which is grown near Oxford. He remembered also years ago buying chip boxes from Norfolk made from *Salix alba*, but now apparently the ubiquitous foreigner has taken that business from this country.

Mr. W. B. Cowie (Edinburgh) said he had estimated a few of the barks for Mr. Holmes, and the results from the various analyses were so different that one could only feel that a great deal had still to be done as regards the effects of the cultivation and keeping on the bark. He also thought that the methods of estimation deserved attention, and suggested this as a thing that the Conference might look into. This he especially referred to, because if various kinds of bark were to be used, and it be required to have some spirituous preparation such as the tincture, although salicin is the sole active principle, a galenical preparation would not be out of place and would need to be assayed.

The next paper read was on

Thermal Waters of Bath.

By W. J. Hallett, M.P.S.

As a preliminary to the visit paid in the afternoon to the baths which the Romans made at the town of Bath, this paper necessarily dealt with the historical and geological, as well as the chemical, aspects of the famous springs. Sir Charles Lyell expressed the opinion that the springs mark the site of a great convulsion in the crust of the earth; but Dr. Freeman, a local writer, opposes that theory. The composition of the water solids, according to Dr. Attfield, is as follows:

Calcium carbonate	7·8402
Calcium sulphate	94·1080
Calcium nitrate	0·5623
Magnesium carbonate	0·5611
Magnesium chloride...	15·2433
Sodium chloride	15·1555
Sodium sulphate	23·1400
Potassium sulphate	6·7020
Potassium nitrate	1·0540
Iron carbonate	1·2173
Silica	2·7061
Total grains per gallon ...	168·2898

Roscoe has found strontium and lithium in the water.

In addition to the saline constituents, the springs contain and evolve on coming to the surface large quantities of a mixture of gases, which Professor Williamson examined in 1865, and gave the following as the volume-composition of the gas:

Carbonic acid...	3·056 per cent.
Oxygen	0·617 per cent.
Marsh-gas	0·216 per cent.
Nitrogen	96·11 per cent.

Later Lord Rayleigh found that it also contained argon and helium—1·2 volume of helium in 1,000 volumes of the gas. Professor Dewar, in 1898, submitted the Bath gas to liquefaction, at the same time comparing it with a liquefied mixture of air and hydrogen, and discovered a marked difference in their behaviour under refrigerating conditions. Whilst the hydrogen-and-air mixture on condensation gave clear transparent liquids, the product from the Bath gas was turbid, and a yellowish-brown precipitate was gradually formed, which proved to be a hydrocarbon, probably of the petroleum series, with a marked aromatic smell, and liquid at ordinary temperature. Another peculiarity of the liquid nitrogen obtained from Bath gas is that on examining it with a spectroscope no trace of oxygen could be obtained, whereas in all other attempts to make nitrogen for liquefaction on a large scale oxygen could always be detected in the liquid. Professor Dewar stated that were helium wanted on a large scale, for experimental or commercial purposes, the King's Well at Bath could be made to yield a good supply.

Is it not a strange coincidence that nearly two thousand years ago the Romans should have named the springs aquæ solis—waters of the sun—and to-day one of our greatest chemists pronounces them to be almost the only terrestrial source of helium, that element existing chiefly in the sun! Professor Dewar has laid down at Bath a plant for collecting the gas from the springs to furnish the Royal Institution with a plentiful supply of nitrogen and helium. Members of the Conference saw this on their visit to the baths.

Mr. Hallett then discussed the physical characters of the water. The quality and quantity of the water never vary, and the three springs daily yield 507,600 gals. The solid constituents in a 12-oz. glass of the water, which is the usual daily dose for those "taking the waters," are 13 5 gr. The water yields 250 cubic feet of gas daily, over 96 per cent. of which is nitrogen. The temperature is exceptionally high for thermal springs, being 120° F.

Occasionally there is found floating in the water vegetable matter (a tiny plant named *Oscillatoria tenuissima*), and sometimes there are deposited small fossilised fruits.

The Bath springs are chiefly successful in rheumatism and skin-complaints. During the past ten years no fewer than 1,020,000 people have taken the waters in Bath.

Discussion.

Mr. Tyrer could not help remarking on the mention of helium that he was present in the Royal Institution laboratory when the first experiments by which helium was identified were made. One of the journals of pharmacy last week [the *C. & D.*] gave an interesting extract from *Nature*, and a report of a pronouncement by Sir William Ramsay at the dinner of the Society of Chemical Industry, when it was announced that amongst the emanations of radium is helium. In pharmaceutical laboratories there ought to be a more complete study of the spectroscope. It might be a fanciful idea, but when he heard the writer of the paper speak of the homœopathic dose of the solids giving such wonderful effects it might be that the spectroscope would show that the effects produced by large doses of medicines are really due to intangible things present in the dose.

Mr. Druce thanked Mr. Hallet for his interesting paper. He thought it a capital idea that at the Conferences references should be made to local things. He rather hesitated, however, to think that the Bath water is the sole source of helium. It would probably be found that helium is yielded by many other springs; one North African spring is known to give off quantities of nitrogen. Has it really been shown, he asked, that helium is given off by radium?

Mr. Branson suggested that in addition to the spectroscope the electroscope is very useful in the pharmacy. He preferred the rod form, which kept the leaves from sticking too tightly. He also advised the study of radium by pharmacists.

Mr. MacEwan mentioned that Mr. Soddy, who is working with Sir Wm. Ramsay, had contributed a paper to the *British Medical Journal* giving full instructions for the collection of radium-emanations and their use by inhalation. Owing to the cost of radium, it is advisable to use thorium nitrate as a source of the emanations. Thorium-emanations are but a millionth of the strength of radium-emanations, but are more suitable for inhalation, as radium is very active. The developments in this subject show that some pharmacists can never be too well educated, as here is a substance which, after puzzling the intellects of men like Crookes and changing the conceptions of matter, is handed over to the dispensing chemist for use in medicine.

The last paper read this day was on

Compressed Tablets.

A Contribution from St. Thomas's Hospital Laboratory.

By Edmund White, B.Sc. (Lond.), F.I.C., and Henry Rodwell, Ph.C.

Following up the paper by White and Robinson communicated to the Conference last year, the present authors now stated that further experience of the method of making tablets with the theobroma and starch excipient shows that it is not applicable on a large scale by means of machines with an automatic feed-arrangement, except in certain cases, where the mixture of substance and excipient happens to form a fairly granular powder, capable of flowing evenly and uniformly from the hopper to the die. They have experimented with the object of removing that defect, and to devise a method by which, when the tablets are crushed between the fingers or between paper, a soft and smooth powder could be produced. The problem resolved itself into the possibility of devising methods by which the oil of theobroma could be uniformly distributed throughout the material to be compressed, forming at the same time a granulated product capable of automatic feeding and compression into a coherent polished tablet with the minimum of force. They have solved this problem by two methods, here given:

Method I.—Theobroma Emulsion.

Oil of theobroma	25 parts
Hard soap	5 parts
Tragacanth	0·5 part
Benzoic acid	0·25 part
Water to	100 parts

Dissolve the soap in 25 parts of water by heat, add the hot solution to the melted theobroma, and mix by whisking or agitation; shake in the tragacanth, add the benzoic acid, then the remainder of the water.

Gum acacia may be used in place of soap without making any appreciable difference in the general utility of the product. The product in either case should be a thick smooth white cream, free from lumps. The addition of benzoic acid is only necessary as an antiseptic precaution if the product be kept in stock. The method of application is as follows: The substance to be compressed, in the finest possible powder, should be triturated with sufficient of the emulsion to form a damp coherent powder—so damp that it can be shaken through a No. 20 or 30 sieve without pressure and without adhering to the meshes. The sifted product, after exposure to the air for a few hours, or during the night, is ready for compression. If the drying-process be accelerated by the aid of artificial heat, the dried product must be allowed to stand for an hour or two at least for the theobroma to solidify before compression is attempted, but in the majority of cases it is better to avoid the use of artificial heat.

If the bulk of substance to be compressed in each tablet either demands or allows the addition of any diluting material, cane-sugar is best; in no case does it interfere with the production of a good tablet, and in some cases the addition appears to be quite necessary. When the substance to be compressed is of a dusty nature, and has little tendency to cohere on compression, the addition of a little glucose, as shown in some of the formulæ given below, is advantageous, the tablet having a better finish and less liablility to crack after compression.

Method II.—Ether-alcohol Solution of Theobroma.

Oil of theobroma	1 oz.
Ether to	6 oz.

Dissolve and add an equal volume of rectified spirit as required for use.

The manner of granulating with the above is to add it to the substance or mixture contained in a mortar, trituration being accomplished as quickly as possible, the whole of the solution required being added at once. The mass is then passed through a No. 20 or 30 sieve and allowed to dry by exposure. Compression can, in some cases, be proceeded with almost immediately, but it will be found more satisfactory generally to allow the mixture to stand for an hour or two. Sugar granulates remarkably well with the above excipient, and the previous remarks on its addition apply here as well.

The authors also tried a number of formulæ for official and unofficial pills. With the exception of certain very expensive forms of pill-machinery, the apparatus used for pill-making involves a number of operations with more or less unsatisfactory results. The most objectionable features in the results obtained by massing, piping, and cutting the pill-mass are—(1) the use of heat, particularly in drying the pills, and (2) the large proportion of cut pills which have to be rejected on account of imperfections either in weight or form. If the same materials could be produced in tablet form, they would be subjected to no risk of damaging their medicinal properties, the whole quantity could be worked off to the last few grains, and no residue would remain for re-manipulation. Among the formulæ below will be found several typical of the pills in common use. The authors are trying to get all the pills required for the use of St. Thomas's Hospital in this form.

The following formulæ have been selected to illustrate the application of the tablet-excipients:

Tablets Made with Theobroma Emulsion.

Soda-mint.

Sodium bicarbonate	40 parts
Oil of peppermint	1 part
Theobroma emulsion	9 parts

Grey Powder.

Mercury with chalk	3 parts
Sugar in powder	$2\frac{7}{8}$ parts
Theobroma emulsion	$\frac{3}{8}$ part

The dried product weighs 6 parts. It is used chiefly for producing 1-gr. and 2-gr. tablets with very light compression.

Hutchinson's Pills.

Mercury with chalk	3 parts
Comp. powder of ipecacuanha	3 parts
Theobroma emulsion	1 part

When dried, tablets weighing 2·1 gr. will contain 1 gr. each of the two chief constituents.

Bismuth and Soda.

Bismuth carbonate	3 parts
Sodium bicarbonate	2 parts
Theobroma emulsion	1 part

When dried, tablets weighing $5\frac{1}{3}$ gr. will contain 5 gr. of bismuth carbonate.

Thyroid Powder.

Dried thyroid gland	11 parts
Sugar in powder	10 parts
Theobroma emulsion	3 parts

When dried, tablets will contain half their weight of dried thyroid. They should not be compressed too firmly, otherwise they may crack.

Saccharin.

Saccharin	9 parts
Sodium bicarbonate	8 parts
Theobroma emulsion	3 parts

The dried granules contain half their weight of saccharin, and disintegrate rapidly.

Santonin and Calomel.

Santonin	
Calomel	
Cocoa	
Sugar, of each	equal parts
Theobroma emulsion	a sufficiency

This is made in 4-gr. tablets, lightly compressed so as to be easily crushed for administration in powder-form for children.

Compound Calomel.

Calomel	1 part
Sulphurated antimony	1 part
Guaiacum resin	2 parts
Sugar	1 part
Theobroma emulsion	0·5 part

Contains a larger proportion of resin than the B.P. pill. As it forms a pill-mass with ether alcohol, the aqueous emulsion is the most useful excipient.

Phenacetin.

Phenacetin	17·5 parts
Sugar	7·0 parts
Glucose	0·5 part
Theobroma emulsion	2·0 parts

The glucose should be first added to the emulsion. Without glucose more pressure is necessary to avoid adhesion to the die.

Phenazone.

Phenazone	5 parts
Sugar	1 part
Glucose	0·15 part
Theobroma emulsion	a sufficiency

Quinine Sulphate.

Quinine sulphate	5 parts
Sugar	2·5 parts
Glucose	0 3 part
Theobroma emulsion	1 part

Acetanilide Compound.

(Tabel. Acetanilid. Co., St. Th. Hosp. Phar.)

Acetanilide	2 parts
Caffeine citrate	1 part
Sodium bicarbonate	1 part
Glucose	0·25 part
Theobroma emulsion	0·75 part

The authors have not succeeded in perfecting a formula to replace pilula ferri, B.P.

TABLETS MADE WITH ETHER-ALCOHOL THEOBROMA.

Opium.

Opium in fine powder	2 parts
Sugar	1 part
Ether-alcohol theobroma	0·75 part

Pepsin.

Pepsin	2 parts
Sugar	2 parts
Ether-alcohol theobroma	1 part

Cascara-sagrada Extract.

Cascara-sagrada extract in powder	2 parts
Sugar	1 part
Ether-alcohol theobroma	a sufficiency

Compound Rhubarb.

Rhubarb	3 parts
Socotrine aloes	2·25 parts
Myrrh	1·5 part
Oil of peppermint	0 175 part
Sugar	4 parts
Ether-alcohol theobroma	1·5 part

Podophyllin Compound.

Podophyllum rosin	1 part
Calomel	4 parts
Alc. extract of belladonna	0 66 part
Sugar	4 parts
Ether alc. thoobroma	1·5 part

Make into 2½ gr. tablots, each containing 1 gr. of calomel.

Aloin Compound.

Aloin	8 parts
Ipecacuanha	2 parts
Extract of nux vomica	1 part
Sugar	4 parts
Ether-alcohol theobroma	6 parts

Aloes and Iron.

Barbados aloes	2 parts
Dried ferrous sulphate	1 part
Comp. cinnamon powder	3 parts
Sugar	3 parts
Ether-alcohol theobroma	1·25 part

FOR COMPRESSED LOZENGES

the general method is to granulate the mixture of medicine, sugar, and gum by means of theobroma emulsion and highly compress the dried granules. So far as the Pharmacopœia lozenges are concerned, the authors succeeded with each of the official bases and submitted samples.

DISCUSSION.

Mr. NAYLOR said that Mr. White's suggestion last year involved too much excipient, so that tablets turned out too large—at least for the manufacturing scale. One direction in which improvement was desirable was that tablets of insoluble substances such as sulphonal should disintegrate quickly when placed in cold water. Mr. White had stated that day that the tablets made by his new process do disintegrate in the stomach, but he (the speaker) did not think this was so as regarded cold water. On the market there were large numbers of tablets of this character which do crumble in cold water. Mr. Naylor proceeded to say that he did not know anything published in connection with pharmacy which was more misleading and useless than the directions about the making of tablets, except what Mr. Hardwick, of Bournemouth, had recommended at the last meeting of the Conference at Liverpool. Most other methods provided tablets so hard and compact that one might allow a tablet to remain in water twenty-four hours without its showing any tendency to disintegrate, and this was the case even with soluble substances such as antipyrene. He considered it extremely fortunate that a good man such as Mr. White had taken up the subject, and he was sure that the Conference had much need of him.

Mr. G. F. MERSON said he had not been able with Mr. White's excipient to produce tablets from a dark powder which were not speckled, and he asked if the methods now suggested were free from this objection.

Mr. ALCOCK said he was very pleased to hear Mr. White's remarks in regard to the need of greater uniformity in the pill-excipient, and he asked the editor of a well-known useful book on dispensing problems—meaning thereby "The Art of Dispensing"—to look into this matter, with a view to future editions. Mr. Alcock also commented on the extreme difficulty of making pil. ferri in combination with soap, and he did not think it possible that it could be done. He had tried with resin ointment, but had not succeeded.

Mr. E. W. POLLARD (Ryde), as a former pupil of Mr. Hardwick, said he constantly dispensed tablets compounded with Mr. Hardwick's excipient, and he had never found any difficulty in making them or any complaint about their utility.

Mr. GLYN-JONES, having commented upon the difficulty of hearing speakers owing to the bad acoustic properties of the hall,

Mr. WHITE replied to the discussion. He said he was satisfied that the tablets which he said would disintegrate did disintegrate, but if anybody wanted a sort of fireworks they could put in a little starch to produce the necessary explosive effect. As to the speckled appearance complained of by Mr. Merson, he confessed he rather liked it. He rather liked speckled tablets. (Laughter.) He would boast about them just as anybody who would produce a cloudy household ammonia instead of filtering it boasted about it. (Renewed laughter.) It was very good business, too.

The Conference adjourned about 4 20 P.M.

Third Session.

WEDNESDAY, JULY 29.

THE morning session opened shortly after ten, some forty members being present. An attempt had been made by rearranging the chairs to improve the acoustic properties of the hall—but with little success. The first papers were by Mr. Bird on

Liquor Rhei Concentratus, B.P.

By F. C. J. Bird.

This liquor cannot be considered quite satisfactory, for on keeping it almost invariably throws down a brownish-yellow deposit, which often adheres to the sides of the bottle containing it. After a considerable time, however, deposition ceases and the liquor becomes permanently bright. The official process for the extraction of the root is in this case but moderately successful. The following results were obtained with a small experimental quantity:

Finished liquor	Extractive	Per cent of total available extractive
20 fl. oz.	13·1	59·6
Subsequent percolate.		
1st 10 fl. oz.	7·4	16.8
2nd „	4·4	10·0
3rd „	3·7	8·7
4th „	1·9	4·2
5th „	0·3	0·6
6th „	0·06	0·1
		100·0

From this it is evident that only about 60 per cent. of the available extractive of the root is contained in the liquor.

A second sample of liquor was prepared from drug containing 6 7 per cent. of moisture (which moisture was allowed for by using a calculated excess of alcohol in the first maceration), and the product submitted to various tests. It was found that although perfectly brilliant when first prepared, deposition took place on keeping, particularly when the temperature was variable. Weak acid, also, on standing, caused a more or less marked turbidity and precipitation, indicating the importance of guarding against loss of alcohol during percolation and storage. From the effect of change of temperature it seemed evident that liquor rhei conc. is a fully saturated solution of the constituents of rhubarb, particularly the resinous ones, and that at a lower temperature this state of saturation cannot be maintained and precipitation takes place.

A similar procedure to that recommended for liquor krameriæ conc. in a previous paper—namely, the incorporation with the finished product of a certain amount of a more powerful solvent of the precipitable constituents—appeared likely to improve the formula, and on trial this was found to be so. Of the solvents tried, glycerin, to the extent of 15 per cent., is the best, and to get a permanent liquor all that is necessary is to add to the words "twelve hours" in the B.P. directions (page 198) the following passage now suggested by the author:

. . . . continue percolation with more alcohol, and reserve the first 17 fl. oz.; then percolate an additional quantity of 3 fl. oz., remove the alcohol from the latter, and evaporate the residue to a soft extract, dissolving it in—

Glycerin ... ... 3 fl. oz.

Add to the reserved percolate to produce a final volume of about 20 fl. oz.

When diluted with water liquor rhei conc. prepared in this way forms a clearer solution than the B.P. preparation and possesses a slightly sweet taste, due to the glycerin.

Liquor Sennæ Concentratus, B.P.

By F. C. J. Bird.

This liquor is one of the most unsatisfactory of the B.P. liquors on account of its bad keeping qualities and the deposition, with loss of extractive, which takes place on storing it for any length of time.

Weak points of the official process are that the senna-leaves are macerated with distilled water for a period of time which must, by strictly following the official directions, extend to at least seventy-two hours, and probably much more. The infusion of senna ferments and becomes acid. When the aqueous percolate has reached a volume of 16 fl. oz. it is heated to 180° F. for five minutes. Loss thus takes place varying in amount according to the way in which the operation is carried out, and no allowance is made for this in the formula. In one experiment the percolate, after being heated, measured when cold only 15 fl. oz., so that with an increased relative proportion of spirit the precipitation of mucilaginous substances would be greater and the final volume correspondingly less. There is also loss in filtering. The process of extraction adopted for senna is less efficient than in the case of any of the other liquors. The author submitted the figures obtained with an experimental batch. The first percolate of 16 fl. oz. contained 24 3 extractive grams per 100 c.c. Of subsequent percolates the first contained 18 0, the second 11 5, the third 8 2, and so diminished to 1 gram in 100 c.c. of the twelfth percolate. The activity of the percolates, as far as could be judged by the taste, corresponded with the extractive content.

Liquor sennæ conc. made by the B.P. process often filters sluggishly, and the clear liquid on keeping continues to deposit and lose extractive. The author has made experiments with a view to improvement, and showed that a more uniform and satisfactory liquor sennæ conc. can be prepared by the following alterations and additions to the B.P. process:

1. Substitute chloroform-water for distilled water in the extraction of the senna.
2. Make up the volume of the aqueous percolate, after heating to 180 F. for five minutes and cooling to 16 fl. oz. with distilled water. All odour of chloroform disappears here.
3. Increase the alcohol in the formula from 2 fl. oz. to 2¼ fl. oz., to compensate for the making-up of the volume of the percolate.
4. When the filtered product has stood for seven days, before filtering, heat the whole to 180° F. in a closed vessel for half an hour or longer until the precipitate aggregates and the supernatant liquor becomes quite clear; then cool and filter.

After heating as above the liquor filters quite readily, and the product is brilliant and keeps for months without change. When diluted with water 1 to 9 the infusion from the modified formula keeps sweet considerably longer than that from the B.P. liquor. It is also slightly darker in colour, but otherwise in taste and appearance there is little perceptible difference.

DISCUSSION.

Mr. HARRISON noticed that Mr. Bird referred only to the keeping-qualities of the liquors. It is not satisfactory, he thought, to have a preparation (liq. rhei conc.) representing only 65 per cent. of the active principles of a drug. Would it not be better to continue the percolation, and after concentrating to add the liquid to the first percolate? His experience is that the B.P. concentrated liquors have not come into use.

Dr. SYMES said glycerin was originally used on account of its preservative properties, but now it is rather used for its solvent properties. It is an excellent solvent for resinous drugs in cases where large percentages of alcohol are not desirable. Would it not be well to add the glycerin to the menstruum to ensure more complete extraction? An advantage of using glycerin in the menstruum is that the liquid can be evaporated without so much risk of injuring the active principles.

Mr. NAYLOR said there could be no doubt that the suggestions of Mr. Bird were extremely valuable. Such work was very much needed in view of the preparation of a new Pharmacopœia. The official preparations were most unsatisfactory, and it was well known in the wholesale trade that wholesalers have for many years been accustomed to look upon the official preparation of senna as practically unworkable. He thought that if the preparations are subjected to the degree of heat for the time stated by Mr. Bird the resultant products would not be deteriorated or rendered less active in medicinal properties. Perhaps, however, it would be better if the nature of the precipitate could be ascertained.

Mr. FREDERICK BASCOMBE asked what standards Mr. Bird would suggest for the new preparations. In a series of experiments undertaken by himself he (Mr. Bascombe) had found that in the case of the rhubarb preparation there was an average loss in keeping of about 1 per cent. per annum, while with the senna preparation experiments on the same lines showed that the proportion of depreciation was not so great as with the rhubarb. He was inclined to agree with the suggestion of Dr. Symes that the addition of glycerin before evaporation would be a distinct advantage.

Mr. Wippell Gadd agreed with previous speakers that these preparations could be much improved, and he thought that they might with advantage be improved off the face of the earth. In his experience he found that no one wants a preparation of senna ten times the strength of the infusion.

Mr. Bird, replying, said his object was to improve the formula; he did not regard it as perfect, and thought it would be preferable to extract, if possible, the whole of the active principles of the drugs. He used glycerin solely with the idea of keeping the resinous matters in solution. The idea was to add a more powerful solvent to an already saturated solution. If glycerin were added to the menstruum the liquor being saturated might be just as troublesome. He quite agreed as to the unsatisfactory nature of the preparations. Replying to Mr. Bascombe, he said the chief objection to the addition of glycerin is that it interferes with the estimation of the extractive content of the liquor, and there is the liability of getting variable results. Mr. Bascombe, in his excellent paper published soon after the new Pharmacopœia came out, gave the loss of extractive as 2 per cent. in a year. That is very nearly the same loss as occurs on heating. The use of the concentrated liquors seems to be limited to certain districts in some parts of the country. These preparations are largely used. A 1-in-7 preparation can always be made by diluting the Pharmacopœial liquor. He thought the preparations were useful, and with a little modification would be at least an improvement on many of the concentrated infusions of a few years ago.

The next paper read was on a

Chemical Examination of Kô-sam Seeds.

By Frederick B. Power, Ph.D., and Frederic H. Lees.

Kô-sam seeds (sometimes written *Khô-sam*) are the product of *Brucea sumatrana*, Roxb., N.O. *Simarubaceæ* (*vide* Engler, "Die natürlichen Pflanzenfamilien," Theil III., Abtheil. 4, page 220; Leipzig, 1896). All the species of *Brucea* are very bitter. The bark and the fruits of *B. antidysenterica* are used with success in Abyssinia for diarrhœa and fever. All the parts of *B. sumatrana* are esteemed in the East Indies as a stomachic tonic, and are also used for diarrhœa, intermittent fever, and worms. A species of the botanically closely allied genus *Picrásma* is referred to in "Pharmacographia Indica," vol. i., page 287.

During the past few years *Kô-sam* seeds have been brought somewhat prominently to notice on account of their reputed value as a remedy in dysentery, and the authors of the present paper have consulted the original publications in order to ascertain the evidence upon which the statements relating to the chemical constituents of the seeds are based. They gave an abstract of the observations by Heckel and Schlagdenbauffen (*Rev. des Cult. Col.*, No. 47, pages 97–104), Dybowski (*loc. cit.*, No. 48, pages 129–131), and a still later publication (*loc. cit.*, No. 50, pages 196–201), Dybowski, Bertrand, and Phisalix. In the last the active principle is described as kosamine, a body possessing extraordinary bitterness and related to the glucosides.

The observations in these three papers being open to doubt, preliminary experiments were made with material sent by Mr. H. N. Ridley, Director of the Botanic Gardens of the Straits Settlements, Singapore (who had specially procured a quantity of the seeds for Messrs. Burroughs Wellcome & Co.), and these the present authors used for their investigation.

The seeds are relatively small, thirty weighing about 1 gram. When crushed they develop a peculiar cheese-like odour. The kernel of the seed possesses an intensely and persistently bitter taste. Preliminary experiments for alkaloid were negative. Fifty grams of the seed, extracted successively in a Soxhlet apparatus with the following liquids, gave the stated amounts of residual extracts (dried in water-oven):

1. Petroleum (b.p. 40°–50°)	gave	10·88	grams	=21·76	per cent.
2. Ether	„	0·17	„	= 0·34	„
3. Chloroform	„	0·65	„	= 1·30	„
4. Alcohol	„	1·92	„	= 3·84	„
				27·24	

Test for an Enzyme.—One hundred grams of the ground seeds was macerated with water at the ordinary temperature for three days, and to the filtered liquid about three times its volume of alcohol was added. The flocculent precipitate was filtered off, purified, and dried. It weighed 3 grams, and was a greyish powder, which hydrolysed amygdalin, giving off bezaldehyde. The crushed seeds did the same in presence of water. With potassium myronate the odour of mustard oil was produced. The seeds therefore contain a hydrolytic enzyme.

A Quantitative Determination of Tannin yielded 1·8 per cent.

Separation of the Constituents.—The authors detailed very fully the nature of the operations done in order to isolate the constituents of the seeds, working on a 4-kilo. quantity, and using all the precautions known to chemical science. Incidentally the account gave numerous references to correlated literature. The paper in detail will be published in the *Year-book of Pharmacy*. Here for the present we must content ourselves with a *résumé*. The investigation shows that *Kô-sam* seeds contain no alkaloid. The amount of tannin found was 1·8 per cent. They contain a small amount of a hydrolytic enzyme. The combined alcoholic and petroleum extracts of the seeds afforded the following substances:

A small amount of an inconstantly boiling mixture of esters, probably of a butyric acid, and having the odonr of the crushed seeds; also a very small amount of free formic acid.

A fatty oil, in an amount equivalent to 20 per cent. of the seeds, consisting chiefly of the glycerides of oleic, linoleic, stearic, and palmitic acids, associated with a saturated hydrocarbon, hentriacontane, $C_{31}H_{64}$, melting-point 67°–68°, and a crystalline substance, $C_{20}H_{34}O$. The latter melts at 130°–132°, and has $[\alpha]_D$ (23° C.) = −37·7°; it is allied to the cholesterols, and agrees in composition with quebrachol, cupreol, and cinchol (compare Beilstein's "Handbuch der org. Chemie," 3rd edit., II., page 1068).

Two Bitter Principles.—One of these (α) was completely extracted by chloroform from an aqueous solution of them, which also contained a quantity of a reducing sugar and a very small amount of some substance which caused the solution to give a deep green colour with ferric chloride, but which was not isolated. Bitter principle (α), which was thus soluble in chloroform, was subsequently obtained from ether, in which it is only sparingly soluble, as a light-coloured, amorphous powder. Bitter principle (β), which was insoluble in chloroform under the conditions mentioned, could only be obtained as a brown extract. It was definitely shown that neither of these bitter principles can be regarded as quassin.

The results of the investigation, therefore, do not enable the authors to confirm the statement of Heckel and Schlagdenhauffen that *Kô-sam* seeds contain quassin, of which they have, in fact, presented no satisfactory evidence; nor do they afford any justification of the statement of Bertrand respecting the glucosidal nature of a bitter principle termed "kosamine." It is to be noted, moreover, that Bertrand has given no indication of having actually isolated any definite substance to which such a name could properly be attached.

A correct conclusion respecting the active principle of *Kô-sam* seeds could apparently only be formed when some definite constituent of them, such as bitter principle (α) isolated by the authors, is tested clinically with reference to its particular value in the treatment of dysentery. It is more probable that the therapeutic value of the drug depends upon the combined action of several of its constituents.

In this connection it would seem desirable to ascertain whether other parts of this plant, such as the bark, may not be as efficient as the seeds, since the latter are somewhat difficult to obtain in quantity. It would also be of interest to determine, by a comparative examination, the constituents of the closely allied Abyssinian plant *Brucea antidysenterica*, which, on account of the properties indicated by its name, is highly esteemed in its native country.

The communication was from the Wellcome Chemical-research Laboratories.

Discussion.

Mr. Holmes congratulated Dr. Power on his excellent paper, which he thought would probably be more appreciated in the East than in this country. The native name resembled that of a drug used in Japan—the root of a species of *Sophora*—and, with the view of preventing accidental substitutions, he suggested that the botanical name should be used for the drug rather than the name as used in the vernacular. It is remarkable, he said, that while European medical men use ipecacuanha as a sheet-anchor in dysentery, Eastern native doctors almost invariably use very bitter drugs, such as *Holarrhena antidysenterica* and *Alstonia scholaris*. He ventured to suggest that these bitter drugs probably act as a substitute for bile, the absence of which is usually indicated by the colour of the fæces in most zymotic diseases. The seeds of *Brucea sumatrana* were presented to the Museum of the Pharmaceutical Society many years ago by the late Dr. de Vrij, who resided for some time in Java, where he had observed the frequent use of the drug in dysentery and malarial fever.

Dr. Power, in reply, said the only reason they had for using the name Kô-sam was because they found that was the current designation in all preceding papers on the subject. However, they would get the botanical name of the plant, and would in future know definitely what it is.

The President next called for

A False Cusparia-bark.

By Evelyn Wm. Pollard, B.Sc. (Lond.), Phar. Chem.

In 1902 a quantity of bark, supposed to be cusparia, found its way into London commerce. Samples of it were sent for identification to Mr. E. M. Holmes, who did not know it, and the author was asked to take the matter up. The only information he could obtain was that it was probably *Angostura braziliensis* or *Cusparia trifoliata* from Columbia. A false cusparia-bark is described by Barclay in Southall's "Materia Medica," and a sample of it obtained from Mr. Barclay proved to be identical. Barclay's description is:

> Recently (1894–95) a bark (origin untraced) has been met with as a substitution for Angostura bark, which has the following characters: In flat or slightly incurved pieces of varying length and width, and from $\frac{1}{16}$ to $\frac{1}{8}$ inch, or rarely as much as $\frac{3}{8}$ inch, in thickness. The outer surface of a grey-brown colour, rough from the presence of many wart-like excrescences of the periderm, and frequently bearing closely adherent lichens of a yellow or yellowish-red colour, marked with numerous black spots; beneath the corky layer the colour is dark greenish-grey. The inner surface is coarsely striated longitudinally, and in colour yellow, yellowish-brown, and brown. Fracture hard, brittle, showing numerous closely adherent concentric laminæ. A transverse section under the microscope shows numerous concentrically arranged large groups of sclerenchymatous cells.

False Cusparia-bark.

The author undertook a histological examination of the bark, and his paper detailed his observations, the net result being that the histology of the bark differs markedly from that of true cusparia in having (1) well-developed sclerenchyma, (2) absence of raphides, and (3) no special oil-cells.

In a chemical examination the bark gave evidence of containing an alkaloid, and with a supply of it presented by Messrs. Potter & Clarke he found that by Heller's process the bark yielded 1·3 per cent. of alkaloid. Petroleum-spirit, ether, and chloroform all extracted a quantity of oily matter, which was aromatic, having an odour of gorse-flowers. This oily matter heated left a non-aromatic fixed oil. The sulphate of the alkaloid was prepared, but the salt could not be obtained in crystals. In a solution of it sodium carbonate caused a precipitate in such a fine state of division that filtration through a treble filter was of little avail. Nitric acid, oxalic acid, and potassium iodide caused curdy precipitates readily dissolved in hot water. The tartrate and hydrochloride, like the sulphate, were very soluble salts, but could not be obtained crystalline either from water or from alcohol. The alkaloid gave no colouration with strong sulphuric acid, but assumed a blue-black colour when chromic acid was introduced. Gold chloride formed with it a chocolate-coloured precipitate, the melting-point of which was 105° C. (uncorr.). The chemistry may thus be summarised: (1) A bitter amorphous alkaloid, (2) fixed and volatile oil, (3) abundant starch, and (4) calcium oxalate.

The chemistry of the bark, therefore, like the histology, is entirely different from true Angostura bark.

Discussion.

Mr. Holmes said the paper was a testimony to the value of the training at the Society's School of Pharmacy. It was at his (Mr. Holmes's) suggestion that Mr. Pollard examined the bark. It was an exceedingly difficult subject, as there were very few clues as to the order the bark belonged to. Mr. Pollard gave such evidence as to make the identification of the bark easy in future. The bark had been sold at the drug-sales, and some had actually got into the retail trade.

Mr. Gerrard said the paper was useful as indicating the direction of research in discovering the active principles of drugs. He (the speaker) was, however, non-plussed on certain points. On adding lime to the drug, was it moistened with water, as the results obtained compared with the drug moistened with ammonia might be different. He was also puzzled to find a substance which has fairly strong alkaloidal characteristics giving a precipitate on the addition of nitric acid or oxalic acid. He was not acquainted with any simple alkaloidal salt which in moderately strong solution gives a precipitate with nitric acid.

Mr. Pollard, in reply, said he slightly moistened the drug on adding the lime—he made it about as moist as a drug prepared for percolation. He did not know any alkaloid the nitrate of which in acid solution was insoluble. Mr. Cripps had suggested that the substance was like emetin in its behaviour.

Mr. Hill asked if it were not possible to have an acid sulphate formed which would be much less soluble in the acid solution.

Mr. Watson-Will said beberine and jervine form insoluble nitrates, and

Mr. Holmes instanced an insoluble acid nitrate, the name of which he could not recall.

Compound Tincture of Benzoin.

By Alfred Wright, A.K.C. (Lond.), A.A. (Oxon.), Phar. Chem.

The author recalled the prosecution of a chemist at Birmingham in June, 1901, for selling compound tincture of benzoin which yielded 147 grams of solid extract per 1,000 c.c., the analyst (Dr. Hill) being of opinion that 183 grams per litre is obtainable if the tincture is B.P., but the summons was dismissed because the Somerset House chemists stated that the tincture bore no evidence of being below B.P. strength. The controversy which ensued was recalled, with a view to showing the members the reasons for the author endeavouring to ascertain how far in practice the figures given by Dr. Hill were in accord with figures obtainable from tinctures sold to the public. The author first examined commercial samples of the drugs used in making the tincture, and found that they gave the following solubility-figures, B.P. alcohol being used to determine solubility:

Socotrine aloes	83	per cent.
Balsam of tolu	94·25	„
Storax purified by pure spirit	89·5	„
„ „ by methylated spirit ...	91	„
„ unpurified	58	„
Siam benzoin, 1st quality	95·5	„
„ „ 2nd quality	96·75	„
Sumatra benzoin, 1st quality	95·25	„
„ „ 2nd quality	67·25	„
„ „ 3rd quality	73·25	„

With these drugs 10 oz. samples of the tincture were prepared.

Benzoin used	Sp. Gr.	Amount of Extraction per litre. Grams
Siam, 1st quality	0·892	200·2
„ 2nd quality	0·892	200·4
Sumatra, 1st quality	0·892	200·2
„ 1st quality, with crude storax	0·837	162
„ 1st quality, with storax purified with S.V.M.	0·892	190·1
„ 2nd quality	0·885	172
„ 3rd quality	0·887	194·2
„ 3rd quality, with crude storax	0·892	143

Specimens of tincture were then obtained from various parts of England, Scotland, and Wales, and the results of the examination of these are grouped:

HOME-MADE TINCTURES.

Sample	Sp. Gr.	Ext. per litre. Grams	Sample	Sp. Gr.	Ext. per litre. Grams
1 ...	0·8925	160	5 ...	0·867	106
2 ...	0·891	184	6 ...	0·885	172
3 ...	0·878	140	7 ...	0·890	162·8
4 ...	0·895	204	8 ...	0·8975	176

TINCTURES MADE BY WHOLESALE HOUSES.

Sample	Sp. Gr.	Ext. per litre. Grams	Sample	Sp. Gr.	Ext. per litre. Grams
1 ...	0·8825	142·2	6 ...	0·875	143·8
2 ...	0·892	164·2	7 ...	0·906	185·8
3 ...	0·892	172	8 ...	0·8925	183·8
4 ...	0·882	154	9 ...	0·8925	181·8
5 ...	0·900	192			

Four samples were uncertain as to origin and gave respectively these figures: 0·892 and 174 grams, 0·8725 and 122·2 grams, 0·887 and 180 grams, and 0·8925 and 180 grams.

All figures represent the mean of two determinations, extractive being determined by evaporating 5 c.c. of the tincture to dryness on a water-bath until the weight was constant. The author was inclined to think that low extractive may be due to the use of unpurified storax, and considered a standard of 180 grams per litre reasonable.

DISCUSSION.

Mr. **GADD** said he had been much interested in Mr. Wright's paper, because at the time the cases mentioned were being taken, he (the speaker) had been in correspondence with Dr Hill on the subject, and he was bound to say that he could endorse Mr. Wright's findings, and admit that on that occasion the public analyst was right. The reason for the correctness of Dr. Hill was probably due to the fact that his then assistant Mr. Liverseege was a pharmaceutical chemist as well as a public analyst. There are probably three reasons why compound tincture of benzoin falls below the proper standard. In the first place, purified storax is not used, secondly benzoin and bark is used, and thirdly the macerate is often not sufficiently stirred up. He thought it most important that the tincture should contain at least 18 per cent. of extractive. Their Irish friends had said that the extractive should be not "more than 19 per cent." This was rather extraordinary, and he thought that perhaps in Ireland they found it cheaper to have more extractive and less spirit. (Laughter.) He believed that in Ireland the extractive has been found to be as high sometimes as 24 per cent., and it would be better if those responsible for the drawing-up of Irish Local Government Board standards, instead of stating the maximum amount of extractive, would state the amount of extractive and also the alcoholic strength. The proper alcoholic strength, as far as his results were concerned, might be put at 75 per cent. With regard to the use of Siam and Sumatra benzoins, it was evident that better results are obtained with Siam benzoin. The late Mr. John Barclay, in THE CHEMIST AND DRUGGIST, had pointed out that Sumatra benzoin is sometimes preferable because that variety contains more free aromatic acids.

Mr. **RUTHERFORD HILL** reminded the meeting of the paper by Mr. George F. Merson, read in Edinburgh about two years ago, on the same subject. In his paper Mr. Merson arrived at the same conclusions as those arrived at by Mr. Wright. Mr. Merson had gone even to the length of demonstration to prove that the low extractive is considerably due to the purification of the storax. It is quite true, likewise, that want of proper agitation led to incomplete solution of the resins.

Mr. **BIRD** inquired whether Mr. Wright had determined the amount of alcohol present, as that might have some effect on the amount of extractive.

Mr. **J. H. THOMSON** thought Mr. Wright's paper extremely interesting, particularly in view of the fact that the excellent method given by Mr. Merson had evidently not been adopted by retail pharmacists. He (the speaker) had employed Mr Merson's method for the past eighteen months, and had found he thus secured entire solution of the resins. The amount of extractive invariably falls below 20 per cent., and the sp. gr. 0·920.

Mr. **BOORNE** said his experience quite coincided with that of Mr. Wright in its general conclusions.

Mr. **HOLMES** treated the subject from a materia medica point of view. Anyone who had seen Sumatra benzoin, he said, could not fail to be struck by the way in which it appeared as it came on the market. The large cubical blocks have an outside covering of varying quantities of bark, and everyone knows that the Sumatra gum is variable in quality. This is not the case with Siam benzoin, which comes on the market in agglutinated tears and in fair qualities throughout. The tears are both large and small, but have no bark. For that reason he had recommended the introduction of the Siam variety into the Pharmacopœia in preference to the Sumatra. He was of opinion that the free acids in both varieties vary considerably. He would be glad to supply free samples of either drug to anyone willing to undertake investigation on that point. In view of the fact that crude drugs, such as galbanum, storax, and benzoin, are in common use, he thought such a paper as they had just heard a strong argument for the introduction of purified crude drugs. ("Hear, hear," and applause.)

Mr. **MERSON** recalled some of his experiments which had been referred to by Mr. Hill. He used the various grades of benzoin with the object of finding out the differences in amount of the w/v of the dried extractive. Drossy benzoin gave results very little differing from Siam. Unstrained storax has water in it, some of which is easily separated on stirring the jar with a stick. The sale of food and drugs people and standards authorities are to blame for fixing the extractive as the standard; they do not trouble about the aroma of the product. The presence of water has considerable effect on the extractive.

Mr. **DRUCE** remarked that the extractive does not necessarily indicate the quality of the drug. At Oxford the authorities receive periodic reports of the amount of sulphur in the gas, and if that impurity is absent the gas is all right. Well, air passed through the pipes would give excellent results. (Laughter.) The illuminating power of the gas was quite lost sight of, and that property of gas is what it is generally used for. (Laughter.) The standards of the analysts are often very defective. In the old days the object was to use the best drugs; quality and aroma were more thought of; whilst the present-day methods lead to a curious lowering of the quality down to a certain standard.

Dr. **SYMES**, replying to what Mr. Holmes had said as to his recommendation to the Pharmacopœial authorities to use only Siam benzoin on account of the variations of the quality of Sumatra, pointed out that Mr. Wright's results showed that the first qualities of Siam and Sumatra benzoin give identical results. To exclude Sumatra benzoin would be to shut out a valuable commercial product, and one from which it is possible to get all the results desired by the exercise of judgment and discretion.

Mr. **Wells** said it would have been a great advantage if Mr. Wright had shown the relative medicinal value of the preparations. In Ireland tincture of benzoin is largely used for veterinary purposes and as an inhalant. It is a grave mistake to have no proper standard of quality for such a preparation. In answer to Mr. Gadd, he would like to say that in Ireland no man in his senses would think of taking the quality of the drugs supplied to the Irish unions as his standard. (Laughter.) It has been stated that the Irish authorities have found that the quality of drugs has improved since the standards were laid down. What he would like to know was the method of collecting the samples. He knew one case where the doctor was reprimanded for getting the contractor to make him up a dozen samples for analysis. The largest poor-law drug-contractors in Ireland are not pharmacists. They are either unqualified persons or druggists. The whole system of contracting is a bad one, and he begged them not on any account to take contract drugs as samples of the medicines used in pharmacy in Ireland.

Mr. **Holmes**, referring to Dr. Symes's remarks, said statistics can be made to prove anything. If he (Dr. Symes) looked at the second-quality benzoin shown in the table, he would see there is considerable difference between Siam and Sumatra. The point is that Siam benzoin varies less than Sumatra. The B.P. should be strictly adhered to.

Mr. **Watson-Will** pointed out the interesting fact that an unpurified storax exists in commerce, which is made by mixing five parts of the powdered bark, from which the storax has been extracted, with three parts of crude storax. This is largely used for incense. Storax contains, according to his experience, from 18 to 22 per cent. of water. This would make considerable difference to the product in which such a storax is used.

Mr. **Gadd** explained that he referred to a paper read by Mr. Umney at Bloomsbury Square last year. Mr. Umney was one of the official referees. He (the speaker) had no intention of judging the standard of pharmacy in Ireland from the Irish Local Government Board standards.

Mr. **Boorne** said Sumatra benzoin is the kind usually preferred, and that on account of its aroma. If a tincture is made with the Siam benzoin, the retailer thinks he has not got the genuine article. In fact, he knew of a case where a country chemist returned some made from Siam benzoin, and said he wanted "B.P."

Mr. **Wright**, in reply, said the great fault was that the tincture was often improperly made. When made in a stone jar the ingredients settled, and were not properly submitted to the action of the solvents. On a small scale he had not found the slightest difficulty in getting the drugs dissolved. He used a wide-mouthed bottle, and kept the vessel well shaken. In regard to Mr. Wells's remarks about the medicinal value of the two tinctures, he had found that people reject the tincture made with Siam benzoin. The tincture is largely used by the poor people in his district in the winter months; and on one occasion, when he made a batch with Siam benzoin, his customers nearly all returned what they had bought as not being of good quality. The tincture prepared with Sumatra benzoin has a more aromatic flavour. Siam tincture may be more effectual for inhalation, as during evaporation he noticed a considerable amount of volatile matter is driven off. He did not estimate the alcohol in the samples, as the extractive is what the analyst goes for. He was much obliged to Mr. Merson for his remarks, as they had set him off on a new line of thought.

Mr. **Boorne** mentioned that Siam benzoin has a distinct vanilla flavour, and on that account perhaps the Sumatra variety is preferred by many people.

The Future of Pharmacy.

By Leo Atkinson.

The complex phenomena of joint-stock trading as applied to pharmacy has so revolutionised our avocation it is well-nigh altered out of recognition. At this Conference, primarily instituted to promote the welfare of our craft, it may not be out of place to endeavour to induce and stimulate a line of thought with the object of evolving some practicable scheme for the conservation of orthodox pharmacy as a retail business. It is abundantly evident that no contemplated legislation will afford even the semblance of protection for the professional side of our business. Whether the proprietors of a business be qualified or unqualified is immaterial to the Government and the public so long as the actual work of dispensing and handling scheduled poisons is confined to qualified subordinates. It seems impossible to make either the legislator or the "man in the street" understand that pharmacy in the nature of things is *sui generis*, and cannot be conducted on competitive company lines without serious risk to the public and the certainty that they cannot be supplied with trustworthy drugs. The prevailing popular idea is that the Food and Drugs Act is sufficient protection. The experienced pharmacist knows better. The wide latitude in gradations in qualities and value of drugs (which the purchaser cannot judge) is the opportunity for the sharp unscrupulous trader, and for this reason pharmacy has suffered more than any avocation from the encroachments of joint stock trading. The wide distinction between the vendors of drugs and medicines and vendors in every other trade where competition, from an economic standpoint may be legitimate, has never been sufficiently accentuated. The purchasing public whilst fairly critical connoisseurs in regard to textiles, art, furniture, and the ordinary necessaries of life cannot possibly be competent to understand or estimate the quality of a drug. It is constantly alleged that pharmacists charge exorbitant prices for drugs and galenicals because the commercial or company chemists charge so much less. The truth is that the commercial druggist can realise much greater profit on low-grade articles. Is it to be wondered at that so many fall by the wayside? There is the additional factor that the unqualified buyers of drugs for a joint-stock company are without the skilled knowledge necessary for differentiation, and the qualified subordinate (usually one of the weaklings of pharmacy) accepts the inevitable. The idea that qualified subordinates guarantee the public the protection the Pharmacy Act is assumed to confer is too ridiculous for serious argument.

The author referred to the object of the Pharmaceutical Society, saying that the Society have honourably carried out important educational work and faithfully fulfilled an implied contract with the State, but owing to a loosely drafted section in the 1868 Act the highest judicial tribunal has bound the unfortunate pharmacist hand and foot and exposed him to the immoral, if not illegal, competition of every petty shopkeeper, one-man company, or dividend-hunter under heaven. We have now to face the fact that the highest educational facilities provided out of the funds of the Society are no longer in any due proportion appropriated by those who propose adopting retail pharmacy as their future business. A large percentage of those taking honours in the Society's schools never contemplate following as a business that which was the object of the founders of pharmaceutical education, so that in effect we are educating and qualifying assistants for joint-stock companies. The natural inference from this condition of affairs must be that retail pharmacy *per se* no longer furnishes a livelihood commensurate with its responsibilities and educational requirements.

Paradoxical as it may appear, year by year in ordinary retail there is less actual need for any great amount of specific pharmaceutical skill. The art of prescribing is neglected by modern physicians. Prescriptions are fewer, and the bulk of these consist mainly in repacking the various nostrums of advertising manufacturers—none too modest in literary mendacity. In the immediate future these factors, in relation to our business, will doubtless be intensified, so that to maintain any due proportion of professionalism in his work the pharmacist must branch out in several directions—optics, photography, bacteriology, mechanics, physical apparatus, &c.—though the technics pertaining to these is not included in present pharmaceutical scholastic training, neither is it retail pharmacy.

The elements of change may be noted in every direction; historic houses are departing from their traditions to meet a new order of circumstances; revolutionary change in medical practice and medicaments determines a corresponding change in the products of pharmaceutical manufacturers, seldom to the advantage or requiring the intermediary skill of the competent pharmacist.

If this be the admitted condition of affairs, the questions arise, Is retail pharmacy as a distinct avocation any longer a necessary, desirable, or possible factor in the body politic? Is the pharmacist as a specialist to become extinct? Our Legislature imply that the disappearance of the pharmacist does not call for parliamentary interference, hence we must work out our own salvation or be crushed out by circumstances we can neither govern nor control. It must be a matter of common observation that now in the general run of chemists' businesses the dispensing, drug, and medicine branch is becoming subordinated to departments of more extensive mixed trading; in fact, pharmacy is used as an attractive side-line for other and more lucrative trades. Owing to the attitude of the Legislature the educational equipment of the up-to-date store chemist need not extend beyond a knowledge of keen commercial methods, the acquirements of a shopwalker, and arithmetical proficiency sufficient to supervise a mechanical till.

The ultimate commercialisation of the drug-trade is proceeding with amazing rapidity, independent of the possible State recognition of company-pharmacy. When this commercialisation is entirely accomplished and the individual pharmacist practically extinct, when the public have for a few years enjoyed the economic blessing of free-trade in medicine and drugs, combined with a medley of articles of household use and consumption—with these elements of serious danger uncontrolled, and encouraged by parliamentary ineptitude, is it not conceivable in such circumstances that history may repeat itself? The pendulum held back in one direction will on liberation swing a corresponding distance the opposite way. The antecedent condition of the drug-trade and the catastrophe which led up to the Pharmacy Act of 1868 are well known, and once again a public danger may develop into a public scare necessitating prompt legislative reform.

To meet such a contingency and finally evolve and establish professional pharmacy as a solid basis is the problem to be carefully considered, without hasty generalisations, so that the mistakes of the past shall not be repeated in the future. As an initial requirement the author suggested the formation of a guild of pharmacy, in no sense to clash with the parent Society. Such a guild, in the light of past experience, would have disciplinary regulations and the machinery for controlling and maintaining internal integrity. He instanced numerous professional associations of like character as evidence that such a scheme is practicable, and suggested that the British Pharmaceutical Conference is the most suitable body to take the initiative.

Discussion.

Mr. **Peck** said he thought their thanks were due to Mr. Atkinson for his very valuable paper. It appeared to be full of truths and bristling with suggestions the value of which was incalculable. Time would not that morning allow them to have a full discussion of the subject, and he trusted that this idea of a Guild of Pharmacy would be taken up and discussed in the press. As one of the Secretaries of the Conference, it would be somewhat discourteous if he neglected to allude to the statement that the British Pharmaceutical Conference was the most suitable body to take the initiative in this work. This he hardly felt to be the case. It was said in the paper that the Guild would have full disciplinary power, and he expected one of the rules would be that each member of the Guild would be a pharmaceutical chemist, or a definitely qualified chemist and druggist. That was not one of the constitutional objects of the Conference, and that was one reason why he thought they would hardly be right in undertaking this work. Then, again, a Guild of this kind would be better able to do its work if left entirely free to adopt its own methods of proceeding. The proceedings of the Conference and the work of the executive are, he took it, at the present time quite enough for them as they are now constituted. At the same time, he knew no reason why the Guild should not be formed. He was quite certain it could do no possible harm, and he did not see why it should not meet during Conference week. (Hear, hear.)

Mr. **Kemp** said that the subject required the best part of a day to discuss it thoroughly. It was one upon which most of them, he had no doubt, held very strong views. He went to a very great extent with the writer of the paper, and believed that a great deal of good—in fact, nothing but good—could come from the institution of a guild such as suggested. Still, he would point out that the other bodies to which Mr. Atkinson had referred had found, somewhat to their dismay, that what they had aimed at and what they had succeeded in getting were two different things. It was patent to all that the Dental Association had not succeeded in suppressing illegal or illegitimate dentistry. He had, from conversations he had had with members of the legal profession, learnt that they were not without black sheep, although they tried as much as possible to put a stop to illegal proceedings. Then there were hundreds and thousands of accountants who were not members of the Chartered Accountants Association. There was nothing to prevent any of them setting up as an accountant or an auditor if one was good enough to engage them. (Laughter and applause.) He did not say this in any depreciatory spirit, but they must not expect too much at the outset. This was more a subject to be taken up by the Federation than by the Conference.

Mr. **Druce** said he thought one of the great dangers of England to-day was the enormous number of societies which dragged subscriptions out of their pockets. (Laughter.) He would rather use the one Society they had, and make it do its duty—(laughter and applause)—but in order to make it do its duty they must all do their duty. It was appalling in these days to find how little unanimity they got when a discussion of vital importance was before them. They saw recently a decision given which was of the utmost value, and yet for the sake of some side-lines they saw dangers arising. That had been their weakness in the past, and it would destroy the prosperity of the future of pharmacy if they were so foolish as to look at side-issues without getting the one thing practicable from either the Legislature or the public. He hoped, in regard to the Bill they had brought in, that they would not waste their endeavours by trying to get too much. Let them ask for what they could reasonably expect to get, and use that as a fulcrum to get other things they hoped for. The future of pharmacy might not be so black as had been put before them in Mr. Atkinson's very interesting paper.

Mr. **Hill** said that the Pharmaceutical Society had always seemed to him the best possible guild of pharmacy which could be conceived. When he listened to the very interesting paper of Mr. Atkinson the conclusion to which it drove him was that the Pharmaceutical Society possessed all the splendid advantages of the old guilds, and is entirely free from their defects. It seemed to him that if they wished to have a guild of pharmacy they had the organisation which met all the conditions that Mr. Atkinson had suggested. (Hear, hear.)

Mr. **Atkins**, President of the Pharmaceutical Society, said that he spoke with a due sense of responsibility. He was quite sure that whatever he said he would offend some one. (Laughter.) The amount of correspondence that came to him every day was very great, and the heavy heap of letters that he received on the previous night—and which he made a special effort to get through that morning—reminded him that they were in difficult and perplexing times. The action of the Council of the Pharmaceutical Society was very roughly handled by some of the correspondents. (Laughter.) He thanked Mr. Atkinson for his very masterly paper. They all knew Mr. Atkinson as a very strong man; he had strong convictions, and he had strongly expressed them. Well, they had to consider what changes had occurred. He remembered at the meeting at Exeter, with the late Daniel Hanbury in the chair, he ventured to send a very rough paper on pharmacy ethics. It was read and discussed, but he was afterwards told by his friend Mr. Groves that there was a solemn conclave held the night before by the Executive Committee as to whether it was not rather a dangerous paper. (Laughter.) It was free from any explosive—(laughter)—but if the paper of that morning had been so submitted he would have trembled for Mr. Atkinson. He had justly and accurately described the disease, but when they came to a remedy—there was the difficulty. His friend had given a practical suggestion with regard to a guild of pharmacy. They knew what guilds were in ancient history and what they might be to-day—they were to maintain a code of honour and lofty principle, and direct educative instruction. He did not think perhaps it was wise to press on to that. He thought Mr.

Atkinson might safely impress on the Council of the Society what he had said. He could assure him that there the matter would be most anxiously discussed and considered. They had no idea generally from the published reports of the proceedings of the long and arduous and anxious times that the members had in committee. They differed there, they argued, and they tried to arrive at a consensus of opinion so far as they could. If the Council were entrusted with the work of dealing with these problems, he thought that would be best. He knew they were in profoundly anxious times. They had to consider various sides of the question before them; and he was more strongly convinced than ever that the future lay in evolution on the thoughtful, cultured, scientific side. The pendulum had swung to an extreme point in one direction. Whether it was going back to the other he did not know. They were not the only body suffering. They were constantly being reminded of the trading side of the question. They were a professional trade. They were told of grievances that grocers suffered; but there was an injustice about their suffering which grocers did not share. The grocer was to a large extent a free trader. They, under Acts of Parliament, were compelled to be educated and examined and licensed; they had to pass through this process, and did not realise at the other end that measure of protection which they claimed. (Hear, hear.) This was a fascinating subject, which might occupy the whole time of a session of Conference. (Applause.)

Mr. Newsholme said that Mr. Atkinson had read an exceedingly thoughtful paper, presenting many unpalatable truths, and they should profit by what he had put before them. The President of the Pharmaceutical Society had referred to the question of a code of honour in connection with guilds, and for his own part he believed, like other speakers, the finest guild was that of the Pharmaceutical Society of Great Britain. If all those who were registered under the Pharmacy Act were to try and observe some code of honour it would be better for the pharmacy of this country. If every individual registered chemist would think to himself what a code of honour meant they would never have had the present curse of limited companies and bogus companies. If each individual chemist had recognised a code of honour no one would have sacrificed himself in the way men had done to enable these limited companies to carry on business to the pharmacists' detriment. (Applause.) They would like to spend a great deal of time discussing Mr. Atkinson's paper, but this was not the occasion, and he thought it would have been better if it had been read before the Federation or some other body. Still, he was not blaming Mr. Atkinson for bringing it forward. Reference had been made to the Dental Association and chartered accountants. The latter were only a chartered body and had no Act of Parliament, but they observed a code of honour; and if their own people did the same thing they would have nothing to complain of.

Mr. Beggs observed that one great shortcoming appeared to be that in certain instances once a young man got through his Qualifying examination he seemed to take no more interest in the Society. If the Society was not supported financially and morally by the rising members it could not put forth its best efforts. They felt that the percentage of men supporting the Society in Ireland was miserably low. He did not know what the percentage was in Great Britain; but they with whom he was identified found they could not get the protection they would like to give to their men unless the men gave some backbone or were the backbone of the Society. He had been closely watching the Pharmacy Bill, and he trusted there was something in it for the future; but unless they got better support he feared that there were rocks ahead. As to the guild, the Society would be the fitting guild; and if the members would only loyally support the Society it would be better. (Applause.)

Mr. Wright remarked that they found some of their best students ultimately entering the employment of wholesale houses, but he did not believe they passed over to what they generally understood as drug-companies. Nor did he believe that the business of the pharmacist had passed away to such an extent that "pharmacy is used as an attractive side-line for other and more lucrative trades." He thought that was rather a libel on the present condition of things. (Laughter and applause.)

Dr. Symes said that the paper was a very valuable one, but he had marked one point on which he disagreed with the reader. It was quite true a great many of the race-horses of pharmacy—the men who took the prizes—did not continue in the calling. That was a leakage he would like to stop. He would like to make pharmacy good enough to retain them. Still, they felt that all education was good, and education in pharmacy had always been the starting-point for men in every class of scientific work. The best medical men to-day were those who had studied pharmacy in early life, and the best prescriptions came from the medical men who had had some education in pharmacy. Mr. Atkinson had pointed out that the men who gave their services to unqualified employers were the weaklings of pharmacy; and afterwards he suggested that these employers were getting their best men. He could not, for his own part, reconcile these two points. (Hear, hear.) The Registrar once told him that he "could stop it all in five minutes" if qualified men would cease to give their services to unqualified men. (Hear, hear.) The President of the Pharmaceutical Society had made some valuable remarks, but he had said, Leave it to the Society. Personally, he was rather anxious that they should not leave it to the Society, but should join the Society in large numbers and be active members, and where they considered that the Council was not sufficiently vigorous, push it on. The Council should show their hand even more than they did in their published report, feeling sure that benefits would accrue if more details were published of their work, enlisting their interest. He hoped that the day would come when they would have the much more active support of all their members. (Applause.)

Sir T. Robinson said that he could not help feeling that Mr. Atkinson had deliberately put forward the very worst side of the question he was anxious to submit to the Conference. He felt that he was putting an amount of energy and life into a subject which was calculated to stir up a very animated discussion. But he found that idea occurred through ignorance of the composition of the Conference. He found it was what they playfully called in Ireland a mutual-admiration society—(laughter)—and there was very little difference. He hoped they would not say "Fools rush in where angels fear to tread," but he might be obliged to say to them something which might not be in keeping with the criticism passed on the paper. He could not help feeling that pharmaceutical chemists had allowed themselves to drift into a pessimistic state of mind for many years, which was exceedingly dangerous to the welfare of pharmacy. He did not take that pessimistic view at all, but felt that they had their future in their own hands. Was he to be told in an assembly of highly energetic, educated, prosperous pharmacists that they had not their future in their own hands? They represented every town, every city, every village almost in the Kingdom, and was he to be told here that such a paltry matter as was brought forward that day was to stand in the way of the march of prosperity and success? He remembered events of past years. Chemists all over the Kingdom seemed to have adopted the words that "men may come and men may go, but we go on for ever." "Give us a certificate, and we ask that it be enacted that in future every man shall be entitled to an income of not less than a hundred pounds per annum." (Laughter.) That was like what they were asking for, instead of remembering that the diploma they received was the doorway to their profession, and that afterwards it remained to them to show whether they should become ornaments, useful men, or prosperous men. There were some points in the paper he regretted. If there were some things to be obtained, it was by the co-operation of all the licentiates of pharmacy in Great Britain. To sneer at men who gave their service to limited-liabilty companies might not be the best way to secure their assistance. They might be the weaklings or they might not. Another point. It was only a straw, but it showed how the wind blew to sneer at the check-till, seeing that the cash-register and the check-till were to be found almost all over the country. It was dangerous to lose sight of the business side of the profession. The decline of pharmacy in this country had been attributed by Mr. Atkinson to one cause only, and that was limited-company trading. That was unknown in his country. He admitted it was a terrible grievance, and if he had the honour of being a licentiate of the British Society he would be attracted to and drawn into a canvass or an agitation that might or might not last a lifetime to set the matter right. He thought the pharmacists were wanting in energy, effort, and originality, that up to now they had not banded themselves together to secure Parliamentary action. He had some knowledge of private Bill tactics. There was an insuperable difficulty to passing an unreasonable Bill through Parliament. If they could have drafted a reasonable Bill which would commend itself to a legislature of business men, they would get their Bill. Mr. Atkinson had touched on the many nostrums introduced in recent years. He felt that the introduction of all these nostrums, the repacking of which occupied so much time, had been really but the beginning of the whole trouble, because that had been the inducement to general traders to open a dispensing branch. He mentioned that in the company with which he was associated every member was a pharmaceutical chemist, and under the articles of association no man could hold shares unless he was registered. (Applause)

Mr. Atkinson, replying to the discussion, said he believed they had unmistakable evidence that the weaklings of pharmacy did go into the trading companies. The percentage of the best men in pharmacy who adopted it as a profession was unquestionably low. He believed the number of joint-stock companies, one-man and so on, was upwards of 1,000, and it was easy to see the proportion that was to the number of chemists in business. Mr. Peck had made certain remarks about that Conference not being quite the place in which this subject should be introduced. In a sense he agreed with him—(laughter)—but they had difficulties in pressing the leaders of pharmacy to what he conceived to be their duty, and the members must not be too particular how they endeavoured to get the thin end of the wedge in. (Laughter and applause) Let them shove them on. He had tried very frequently to stimulate their leaders; but that had not been very effective. About seven or eight years ago, at one of the annual meetings, he tried to persuade them that their poison schedule was in a bad state, and had never been touched from the time it was first instituted. They said it would have attention, and it came to this—it had been reorganised practically outside the Society. (Laughter.) There was a movement in two directions—one, in the medical profession, and he felt confident that soon there would be a differentiation between the dispenser and the prescriber. When that did arrive he thought they wanted some organisation, preferably the Pharmaceutical Society, that would be ready to grasp that factor and make use of it in such a manner that pharmacy should not degenerate so much in the future. His real object in reading the paper was that some of his pharmaceutical friends might be stimulated. The pharmacist had abundant opportunities if he would only use them. He was constantly coming into contact with the intelligent portion of the community, and if he would only endeavour to educate them up to the anomalous conditions under which their medicines were supplied to them he would do amazingly useful work. They might call it missionary work; but he did not think there was a collection of men who more required missionary effort than the Pharmaceutical Society of Great Britain. (Laughter and applause.)

The President thanked Mr. Atkinson very heartily for his paper. The next one was on

Balearic Botany.

By J. White, F.L.S.

This was a description of a botanical excursion undertaken at Easter of this year in the Balearic Isles. It was necessary at that early part of the year to go to the South of Europe, and the Balearic Isles were chosen as containing a larger proportion of endemic species than other Mediterranean islands. This group of islands, taken together, is about equal in area to the county of Somerset, and the native plants comprise nearly one thousand four hundred species of flowering plants and ferns. Of that number more than a thousand belong also to the peninsula of Spain, and almost as many to Italy, France, and Algeria respectively, showing that, when the vegetation is compared as a whole with that of neighbouring countries, an evident fact is that, excepting some species that are entirely special and some others rare and little known that give it a peculiar character, the flora of the Balearic group is very closely allied to that of the countries named. But the striking feature of this flora is that it contains about forty species known to grow only in one other country and fifty which are at present unknown elsewhere in the whole world. Mr. White then described the voyage from Barcelona to Minorca and the welcome given him at Mahon by Don J. J. Rodriguez, the veteran naturalist and friend of Mr. E. M. Holmes. On a walk from Mahon to Cala Mesquida many interesting plants were noticed, such as a big shrubby wormwood (*Artemisia arborcscens*), *Capparis spinosa*, *Ferula communis*, a gigantic umbellifer 9 feet high, two species of *Frankenia*, and two of *Asphodel*—the smaller asphodel (*A. fistulosus*) about a foot high, the larger (*A. albus*) reaching 4 feet to 5 feet. The plant bears locally three different names at three stages of its growth. Before the flowering-stem appears it is "Purrasa"; when flowering, "Au Bo"; and when dry, "Caramusha." Other plants seen on this journey were *Solanum sodomæum*, *Ononis crispa*, *Senecio Rodriguczii*, *Digitalis dubia*, *Lavatera minoricensis*, and *Vicia bifoliata*; the last two only grow at Cala Mesquida. A number of thorny and prickly plants prosper in the country—*Calycotome spinosa*, *Juncus acutus*, *Oxycedrus juniper*, *Astragalus Potcrium*, *Sonchus spinosus*, and *Asparagus horridus*. The young shoots of the last-named are tender and edible. On another occasion, during a drive to Albufera, the following plants were met with: *Cynoglossum pictum*, *Celsia cretica*, *Lepidium Carrerasii* (peculiar to Minorca), *Salvia clandestina*, *Ephedra fragilis*, *Ornithogalum arabicum*, *Briza minor*, and some rare *Leguminosæ*. Everywhere may be seen *Galactites tomentosa* (a graceful sort of thistle) and *Ecballium elaterium* (squirting cucumber). Sufficient of the latter grows wild in Minorca to supply the needs of a century at the present rate of consumption. The mastic (*Pistacia Lentiscus*) in the Balearics forms as a mere bush the chief constituent of the underwood, but a tree was pointed out as one of the largest in existence. Its branches covered a space about 30 feet in diameter. The bulbs of the great squill (*Urginca Scilla*) protrude from the scanty soil in all directions, some as big as a child's head. The natives are well aware of the medicinal properties of squill, and also keep a plant on the staircase of each house as a charm against erysipelas. Mr. White also described a visit to the Barranco de Algendar—a fissure or cañon riven through the plateau of miocene rock that occupies the whole of Southern Minorca. Sheltered from the winds, this is one of the few spots in the island where palms and citrus-fruits reach perfection. *Laurus nobilis* attains the height of 50 feet, and rare plants are frequent along the rocky escarpments. *Pænia corallina* abounds, a decoction of the root being much used as a remedy for epilepsy. *Delphinium Staphisagria* is also plentiful, and *Urtica pilulifera*, the most viscous and venomous of nettles. Mr. White gave particulars of other botanical finds, and had many interesting things to say about the simplicity of the habits of the people and the cleanliness of the buildings.

Discussion.

Mr. Holmes referred to Mr. White's reputation as a botanist, which was rather continental than pertaining to this country. Mr. White's specimens are sought by the curators of all the European museums on account of their great interest.

The President, in putting the customary vote of thanks, said he envied Mr. White his interesting experiences.

The Conference then adjourned for lunch.

Fourth Session.

The last session opened late. It was not till 2 23 that the President called for order and for the following paper:

Crystals in Extracts.

By F. H. Alcock, F.I.C.

In March the author called attention to some crystals which had been found in extract of henbane (*C. & D.*, March 21, page 492). A few days after, the late Mr. John Barclay sent to the author some crystals which he had received from Mr. M. J. Ellwood, Leominster, who had, in a paper in the *Ph. J.*, November 19, 1870, recorded the presence of calcium oxalate in extract of belladonna. The author has found that the crystals are fine ones of potassium chloride, coloured with a little of the extract. By analysis they gave 99·8 per cent. KCl. A second example was deposited from an alcoholic extract of pyrethrum, and these crystals were found to be KH_2PO_4. Another specimen, from extractum carnis, was examined, and found to be soluble acid phosphate of calcium ($CaH_4P_2O_8$). It would seem, then, that these crystals are not always of the same composition, and as potassium nitrate has often been found, as also calcium oxalate, it is not safe to conclude that all extract crystals are one and the same substance.

Discussion.

The President said he was always under the impression that the crystals in extracts were acid phosphate of potassium.

Mr. Ransom said he had frequently noticed crystals in extract of hyoscyamus, and had always taken them to be potassium nitrate. He had, however, had the crystals examined after hearing about Mr. Alcock's paper, and they were found to be potassium chloride.

Mr. Wright said he had examined the crystals in a sample of extract of aconite, which might have been in stock for ten years, and he found they were potassium chloride.

Mr. Betty asked how Mr. Alcock accounted for the formation of crystals in extracts.

Mr. Alcock, in reply, said he was glad to get confirmation of his findings from such an authority as Mr. Ransom. As the formation of crystals was a general thing in green extracts, he was not surprised to hear that they had been found in extract of aconite. As to the reason of the formation of crystals, that is an interesting question which he must hand over to Mr. Ransom.

Hyoscyamus Muticus.

By F. Ransom, F.C.S., and H. John Henderson, Ph.C.

Dunstan and Brown showed (*Trans. J. C. S.*, 1899, 75, 72; *C. & D.*, December, 1898, page 939) that *Hyoscyamus muticus* of India contains practically 0·1 per cent. of pure hyoscyamine. Subsequently they found in the *Hyoscyamus muticus* of Egypt 0·87 per cent. of hyoscyamine in the seeds, and 0·59 per cent. in the stem and leaves. Dr. Gadamer had previously found 1·34 per cent. in the seed-capsules and seeds, 1·393 per cent. in the leaves, and 0·569 per cent. in stems (*Arch. Pharm.*, 1898, 236, 704; and *C. & D.*, January, 1899, page 61). The present authors have found (1) in the light-brown stalk, 0·498 per cent. of alkaloid; (2) in the leaves, leaf-stalk, and seed-capsules, 0·9 per cent.; and (3) in the seed-capsules, 0·585 per cent. Any of these forms could be placed on the London market. A tincture prepared by the authors standardised to contain 0·01 per cent. hyoscyamine was submitted to various hospitals and medical men. One report only has come to hand. Mr. W. A. Shann, M.B. (Cantab.), of Lowestoft, makes the following remarks:

> I have a very strong impression that the *Hyoscyamus muticus* tincture is markedly superior to the ordinary tincture. In the first case in which I tried it—a case of inflammation of the bladder—the relief was immediate, and my subsequent experience has confirmed me in the opinion that it is a reliable preparation of considerable therapeutic value. I have found, too, that smaller doses are required than of the ordinary officinal tincture.

The authors are indebted to Mr. Ernest Floyer, Member of the Egyptian Institute, for the following interesting information on the natural history of the plant:

> *Hyoscyamus muticus*, or "Sakran," "the drunken," makes in the Nile Valley large succulent leaves, but does not give a very large amount of seeds. One fresh shrub will weigh as much as 60 lbs. In sandy soil less leaf and more flowers are produced, and the root is largely developed. In coarse sand sometimes 5,000 seed-pods will ripen, each pod containing about one hundred seeds. The plant does not bear submersion, and such as spring up in ground flooded by the High Nile are strictly annual. Those above reach of water attain an age of from three to five years, giving each year more seeds and fewer leaves.

The Egyptians employ the plant as plasters for the chest.

Discussion.

Mr. Gerrard said he had watched the career of *Hyoscyamus muticus* with interest, and was surprised at the large percentage of hyoscyamine it was said to yield. He expected that the price of the alkaloid might be affected by the introduction of the new plant, but so far there had been no depreciation in value. The very large percentage obtained by Dr. Gadamer had not been confirmed, he observed, by the authors. He (the speaker) had obtained specimens of the plant and made examinations which showed that—as far as he could tell from his limited supply—the percentage came out at about 0·5 per cent. Eminent therapeutists are generally of opinion that belladonna will answer all the therapeutic purposes of hyoscyamus. He hoped that in the next Pharmacopœia the present official preparation will be rejected, and that the plant under consideration will take its place.

Mr. R. B. Betty inquired whether the tincture of *Hyoscyamus muticus* caused the dryness of the throat that is observed in the official article.

Mr. Ransom, replying, said he thought the estimations of Dunstan were likely to be more accurate than those of earlier investigators. He had no information regarding the dryness referred to by Mr. Betty, but none of the doctors to whom the tincture had been supplied had made any complaint.

Quantitative Separation of Strychnine from Quinine.

By E. F. Harrison, B.Sc., and D. Gair.

The quantitative separation of a small amount of strychnine from a relatively large amount of quinine becomes necessary whenever it is required to make a full examination of such preparations as Easton's syrup or compound syrup of hypophosphites. The authors gave *résumés* of various methods which have been suggested, the more important being those mentioned in Allen's "Commercial Organic Analysis" (second edition)—viz., Holst and Beckurts' and Dwars', neither of which in the authors' hands gave sufficiently accurate results. The following method, depending on the different solubility of the tartrates in solution of Rochelle salt, proved quite successful. It is best to adhere closely to the details as to quantities, &c.:

An amount of the mixed alkaloids containing about 0·05 to 0·1 gram of strychnine is dissolved in 60 c.c. of water slightly adulterated with sulphuric acid. Ammonia is added as long as the precipitate re-dissolves, when the quinine will be in the state of acid sulphate. Fifteen grams of powdered sodium potassium tartrate is then added gradually, with stirring; then more ammonia until the mixture is only just acid to litmus paper, and it is then warmed on the water-bath for about fifteen minutes, and allowed to stand till quite cold (about two hours). The quinine tartrate is then filtered out with the aid of a pump, and washed with a solution of 15 grams sodium potassium tartrate in 45 c.c. of water made just acid with sulphuric acid. The filtrate and washings are mixed, made strongly alkaline with ammonia, and extracted three or four times with chloroform. The chloroformic solution is washed with 10 c.c. of water containing a few drops of ammonia solution, evaporated to about 4 or 5 c.c., 10 c.c. of alcohol added, and the mixture evaporated to dryness. The residual alkaloid is washed three times, with 1 c.c. of washed ether each time, and the washings rejected. The residue is practically pure strychnine and is dried and weighed.

The alcohol is added not only to prevent decrepitation but also to avoid retention of chloroform by the strychnine, which otherwise occurs. If the amount of strychnine in the total alkaloid taken is much over 0·1 gram, it is necessary to increase the quantity of the first solution and of the Rochelle salt; otherwise the same treatment is employed.

A number of determinations, in which known quantities of strychnine were taken were made by this method, and the results are given below. The bisulphate of quinine employed had been purified from all but traces of other alkaloids. The sulphate was ordinary good commercial salt, fulfilling the official requirements as to the amounts of other alkaloids present. The "mixed sulphates" was a mixture of equal weights of quinine sulphate and sulphates of the other alkaloids left when pure quinine was separated from the commercial article. The results show that the presence of these other alkaloids, even in considerable quantity, does not seriously affect the correctness of the results obtained by the method.

Taken		Found
Strychnine	Other Alkaloidal Salt	Strychnine
0·0500	1·5 quinine bisulphate	0·0510
0·1000	1·5 quinine bisulphate	0·1000
0·1500	1·5 quinine bisulphate	0·1504
0·2000	1·5 quinine bisulphate	0·2036
0·0500	1·0 quinine (alkaloid)	0·0504
0·0500	1·5 quinine sulphate	0·0500
0 0500	1·5 quinine sulphate	0·0510
0·1200	2·0 quinine sulphate	0·1194
0·0750	2·0 mixed sulphates	0·0780

Discussion.

Mr. **Bird** was pleased, when he saw the list of papers to be read at the Conference, to note that the authors had attacked the very important problem of the separation of quinine and strychnine. Easton's syrup is examined analytically throughout the country, he said, and a trustworthy process is required. Some time ago he experimented with various solvents as a means of separation, but abandoned the idea after a little work. It is quite easy to ensure the proper quantity of strychnine in a sample of Easton's syrup, but some specimens which there was scarcely a doubt about had been returned by analysts as containing either 20 per cent. more or less than the quantity present. It has been recommended to shake out the alkaloids, weigh and calculate from the sulphate present the quantity of quinine in the solution, the strychnine being taken by difference. This way was open to objection, but the method of the authors appeared to be unexceptionable, and he congratulated them on having worked out such an excellent process.

Mr. **Tyrer** endorsed Mr. Bird's remarks, and was pleased to note that the varying solubility of the respective tartrates is the way out of the difficulty in separating strychnine and quinine. In the examination of the scale-preparation of quinine and strychnine it is important to have definite results. He noted also the growing value of the use of saturated solutions as solvents in analysis. This differentiation of solubility has been of great importance in several recent processes.

Mr. **Harrison**, in reply, said the method of estimating quinine from the amount of sulphate present is liable to great error on account of the magnification resulting from the slightest error. It is important, in drying the strychnine before weighing, to see that all the chloroform is dissipated, and for this purpose alcohol is the best.

Volumetric Use of Fehling's Solution.

By E. F. Harrison.

The volumetric determination of reducing sugars by means of Fehling's solution does not usually give more than approximate results, on account of the difficulty of sharply observing the end-point of the reaction. The chief indicators that have been employed are potassium ferrocyanide and hydrobromic acid; both these, however, require the filtration of small quantities of the liquid before applying the test, which leaves much to be desired in respect of accuracy. In Pavy's modification the end-point is shown by the final disappearance of colour from the liquid, and the same may be attained by the use of potassium cyanide as suggested by Gerrard.

Mr. A. A. Kelly, one of the author's assistants, suggested the utilisation of the action of cupric salts in liberating iodine from iodide, and an indicator based on this action has proved a great improvement over those mentioned. The indicator is prepared by boiling 0 05 gram of starch with a few c.c. of water, adding 10 grams of potassium iodide and diluting to 100 c.c. These quantities need not of course be exactly adhered to, but too much starch or too little iodide lessens the delicacy of the test; the solution should be prepared as required, and not used after it has been made more than two or three hours. In use about 0 5 or 1 c.c. of this solution is taken, acidified with about 5 or 10 drops of acetic acid, and 1 drop or more of the titration liquid added; the latter need not be filtered. As long as unreduced copper is present a colour is produced, varying from red to blue, and of greater or less intensity, according as the end-point is far off or near. The production of no colour marks the end of the reaction.

This indicator gives a readily observed colour with 1 drop of a solution of copper sulphate of strength 1 in 20,000, and by its use titration of Fehling's solution with a suitable sugar-solution can be made as accurate as most other volumetric operations. After very little practice one titration is sufficient for moderately accurate results, but greater exactness is of course obtained by repeating, and at once running in the sugar-solution almost up to the required amount before testing.

Discussion.

Mr. **Tyrer** said the method explained by Mr. Harrison was in all essential respects the same as that used for some years in his own laboratory, and the point he wished to emphasise was that it is worthy of all acceptation.

Mr. **Gerrard** indicated that he meant to give the method a trial whenever he got an opportunity. He thought that both Mr. Harrison's and the cyanide method he (the speaker) introduced to the Conference some years ago were defective in so far as it was necessary to prepare a fresh solution for making each test. It would be better if something could be found readily prepared that could be used each time. He asked whether Mr. Harrison had had much experience with urines, which, on adding to Fehling's solution, have to be given time on account of the formation of a cloudy precipitate.

Mr. **Alcock** complimented Mr. Harrison particularly on his making the fact clear that weak solutions of starch are more effective in detecting iodine than the strong solutions generally used.

Mr. **Harrison**, in reply, said the solution oxidises very quickly, and is therefore very rapid. With regard to the precipitate not settling, that was of no consequence with his method, as it was quite immaterial whether a clear solution or other were used, and it was unnecessary to filter. He had to admit, however, that his work had not been so much with urines as with other sugar-solutions.

Ferri Arsenas, B.P. 1898.

By Wm. W. S. Nicholls, B.Sc. (Lond.), F.C.S.

With the view to making the estimation of the arsenic in ferri arsenas as easy a task as that of assaying the (ferrous) iron, the author undertook the examination of typical commercial samples of the salt, and submitted details of the method employed, which is based upon a provisional patent-specification (1867) by Clark and Esilman "for decomposing sulphides of copper," in which it was pointed out that the "per"-salts of iron decomposed the sulphides of a large number of metals. It occurred to them that this action might be used for the estimation of arsenic when in the form of its sulphide, and they found the method applicable to the direct estimation of arsenic in iron. This method the author recommended for standardising "ferri arsenas." For this purpose a weighed quantity of the salt is put into a distilling-flask, strong solution of ferric chloride added, the flask connected up with a condenser, and the AsCl$_3$ distilled over.

The apparatus required consists of a stoppered 4-oz. glass retort with the neck bent into the shape of an inverted v (Λ) connected with a worm condenser, to the other end of which is attached a straight adapter. This passes into about 75 c.c. of water in a flask fitted with a guard-tube and immersed in ice-cold water. A small Bunsen lamp, a piece of asbestos gauze, and a burette complete the outfit. The solutions required are—(1) Pure re-distilled arsenic-free hydrochloric acid; (2) 4 oz. of perchloride of iron dissolved in 100 c.c. of the acid; (3) iodine of half the strength of the volumetric solution of iodine, B.P. (*i.e.*, of N/20), each c.c. of which is equivalent to 0 001875 gram As, and which has been standardised against pure As$_2$O$_3$; (4) caustic soda (free from iron) as strong as possible; (5) sodium bicarbonate (saturated); and (6) starch paste. For the experiment, weigh out accurately 0·13 gram of the sample of "ferri arsenas" and introduce it into the retort, together with 1 gram of ferri sulphas, B.P. (powdered), 10 c.c. of the solution of $FeCl_3$, and 20 c.c. of the concentrated HCl. Insert into the hole of the retort which usually carries the stopper a cork through which passes a thistle funnel bent so that the straight end dips well under the liquid in the retort and the thistle end sits upright; connect with the condenser and receiver, protect the bottom of the retort with the asbestos gauze, and apply a very small flame. The contents of the retort must be kept in motion until the liquid begins to boil, otherwise superheating occurs, accompanied by violent bumping and consequent danger to the apparatus. As soon, however, as boiling commences the contents distil without further attention until, by careful regulation of the flame towards the end of the operation, only about 10 c.c. of liquid remains in the retort. Some experience is needed to prevent disaster at this point. Should "bumping" commence, the flame must be immediately removed and the retort slightly raised from the hot gauze, as if any of the iron solution is carried over into the distillate the experiment is valueless, for on making the solution alkaline, prior to titration, you will simply regenerate your "ferrous arsenate."

The first distillation should be made at as low a temperature as possible, but the second and third may be carried on more rapidly. For the second distillation add through the thistle funnel in the retort 20 c.c. of concentrated HCl, and proceed as before. Two distillations are sufficient to effect the liberation of the whole of the arsenic, but, as a precaution, a third with a further 15 c.c. HCl, and a final one with 20 c.c. H_2O may be made. The condenser should be washed with H_2O until the runnings cease to redden blue litmus-paper, the washings being added to the distillate.

The distillate is then exactly neutralised with a strong solution of NaOH (free from Fe), or of AmHO, an excess (50 c.c.) of a saturated solution of $NaHCO_3$ added, and the titration with N/20 iodine carried out as directed in the textbooks.

It is important that the HCl and solid $FeCl_3$ should be free from arsenic, and that the condenser is efficient. The annexed table of results shows the proximate analysis of twenty-eight samples of ferri arsenas obtained from representative wholesalers in the three Kingdoms. A glance at the figures reveals broadly these facts: (1) That there are on the market two principal kinds of "ferri arsenas," the one containing approximately 30 per cent., the other 27 per cent. of arsenic; (2) that no less than 39 per cent. of the samples examined fell below the B.P. standard for "ferrous arsenate." The suggestion of the Conference that this standard be abolished in favour of the arsenic-content is, therefore, fully justified, but there is a difficulty in producing a satisfactory preparation as regards the ferrous-iron content. The author has also examined samples of sodii arsenas, B.P., and the distillation method of assay for percentage of arsenic is equally applicable to this salt. Six samples show an arsenic-content ranging between 40 18 and 40 32 per cent., while calculation required 40 30 per cent.

PROXIMATE ANALYSES OF "FERRI ARSENAS," B.P. 1898.

Progressive No. of Sample	Percentage of				Equivalent Percentage of			Total Percentage
	Iron		Arsenic	Water	Ferrous Arsenate	Ferric Arsenate	Ferric Oxide	
	Ferrous	Total						
1	4·68	27·73	29·55	15·56	12·43	65·91	5·93	99·83
2	5·94	28·15	29·94	14·66	15·78	63·84	5·59	99·87
3	4·86	28·30	29·92	14·23	12 91	66·47	6·26	99·87
4	3·68	28·20	29·81	14·29	9·83	68·87	6 82	99·81
5	3 63	28·42	29·73	14·18	10·76	67 84	7·02	99·80
6	3·49	28·01	29·82	14·53	9·28	69·38	6·60	99·79
7	3·51	28 41	30·15	13·64	9·34	70·19	6·81	99·98
8	5·79	28·19	30·61	13 46	15·38	66·08	4·93	99·85
9	3·87	27·84	30·85	13·31	10·28	71·17	5·08	99·84
10	3 49	28·12	30·72	12·89	9·27	71·74	5·80	99 81
11	12·36	30·20	27·04	17·01	32·84	41·54	8·47	99·86
12	9·58	28·25	30·66	13·88	25 46	57·42	3·15	99·91
13	2·17	29 88	27·07	15·94	5·78	65·30	12 83	99·85
14	5 08	28·23	29·94	14·31	13·50	65 99	6·04	99·84
15	2·74	28 06	29·87	14·36	7·29	71·25	7·00	99·90
16	5·19	30·43	26·89	15·86	13·78	57·82	12·38	99·84
17	5·07	30·04	27 10	16·06	13·47	58·65	11·64	99·82
18	3·58	28·17	29·21	15·61	9·51	67·58	7 15	99·85
19	5 04	30·42	27·08	15·51	13 41	58·66	12·21	99·82
20	3·39	32·02	25 39	15·59	9·01	58·10	17·10	99·80
21	4·23	27·76	29·55	15·48	11·24	66·98	6·17	99·87
22	3·07	27·82	29·64	15·11	8·16	69·90	6·67	99·84
23	7·37	30·59	27·02	14·74	19·58	53·10	12·43	99·86
24	3·20	30·24	27·06	15·53	8 52	62·87	12·86	99·79
25	5·29	27·78	30·19	14·63	14 06	66·15	5·02	99·86
26	5·04	30·27	27 01	15·85	13·45	58·43	12·08	99·81
27	9·10	31 40	27·25	14·49	24·18	49 66	11·51	99·84
28	3·63	27·85	29·16	15·83	9·65	67·34	7·00	99·82

Mr. NICHOLLS interpolated some disparaging remarks about the diagrams of "condensers" used by Professor Sydney Young which remained on the wall from the previous day, and in the

DISCUSSION.

Mr. O. C. M. DAVIES rightly objected to such remarks. If Mr. Nicholls had anything to say about the still-heads he should have taken the opportunity of doing so when Dr. Young was present.

Mr. TYRER said he was pleased to find that the loyalty to, and the influence of the personality of the present-day professors was so pronounced. When Mr. Nicholls uses such very indignant philosophy against the manufacturers one is led to expect from him sublime accuracy. It is absolutely necessary to use efficient condensers when manipulating volatile products. The condenser referred to in the paper is very simple, very efficient, and at any rate in quite common use in the chemical laboratories of the country. Long condensers are out of place in most laboratories, but the one which Mr. Nicholls in his haste referred to was not one of which Dr. Young made the slightest mention. Referring to the paper, Mr. Tyrer said he had never known such wide differences in the arsenic-content of ferrous arsenate. Since the arsenic scare the old Marsh's test has not been abolished, but regulated and synchronised, so that the conditions now ensure some degree of certitude in the test. Now arsenic-free hydrochloric acid and ferric chloride are sold at commercial prices. He would, however, be pleased to hear next year the promised method by Mr. Nicholls of eliminating the remaining one in four million of arsenic. (Hear, hear.)

Mr. Alcock said that the statement made by the author with regard to his suggestion of the use of barium chloride as an interesting test for arsenates was true, and that a suggestion had gone forth that it might prove to be a useful means of determining quantitatively the arsenic-content of such soluble arsenates as sodium. The subject was not new to the Conference, for on several occasions it had been brought forward. Mr. Dudderidge had suggested that the determination of the sodium would be a measure of the arsenic-content, and apparently the B.P. admitted such a conclusion as far as ferrous arsenate is concerned. Objection was always raised against these deductions. The process now described was not new, and had been used by the toxicologist for some years with quantitative success. Its great objection was the bumping, which terrified the young student; but if the process was introduced into the B.P. it would only fall into the hands of expert pharmacists, and safe working was ensured. The arsenic HCl question had been much to the fore since the beer scare, and now the difficulty as to arsenic in it and other chlorides had been reduced almost to complete elimination, and could no doubt be relied upon at the present moment by the pharmacist and analyst.

Mr. Harrison complained that no control figures were given, and was inclined to think that the arguments put forward by the author for the abolition of the B.P. standard and its replacement by an arsenic standard would be impracticable by the methods given.

Mr. Nicholls, replying, apologised freely for any offence he inadvertently gave in his reference to Professor Young's paper. It was far from his intention to say anything offensive concerning Professor Young, who belonged to the same university as himself. With regard to the statements made about the prevalence of arsenic-free hydrochloric acid, in making the researches he had been supplied with samples of hydrochloric acid from thirteen different firms, and not one of them proved to be arsenic-free. He did not believe in control figures. They were apt, in his opinion, to lead one to get the results one wanted. In reply to a further question by Mr. Harrison as to what method was used in determining the arsenic in the hydrochloric acids examined, he stated that the determinations were made electrolytically.

A Concurrent Curriculum.

By H. Wippell Gadd, F.C.S.

One of the objections generally entertained to the Pharmacy Bill, now before the House of Commons is due to the clause which somewhat irrelevantly seeks to give to the Pharmaceutical Society power by by-laws to enforce a curriculum upon those who intend to present themselves for the qualifying examinations. With the present scarcity of apprentices, and the many drawbacks which in these days militate against the popularity of pharmacy as a calling, it is contended, with much reason, that it would be absurd to insist on anything like a collegiate course for those whose careers will probably be almost entirely commercial. On the other hand, educationists agree that examination is but the roughest test of efficiency, and that a proper standard can only be attained by a suitable course of training. Moreover, the great majority of pharmacy students voluntarily submit themselves to some sort of curriculum, although, unfortunately, most of them take their training as they sell their drugs—in a compressed form. But training, to be thorough, must be prolonged. Concentrated education is as delusive as concentrated food. It is rightly stipulated that all students shall undergo a three-years' apprenticeship or its equivalent.

It would be too much to add to this a nine-months' curriculum, although the subjects of which a knowledge is demanded require a full academic year for their proper teaching. The alternative would seem to be to take the two courses concurrently. The object of this paper was to outline such a course.

If a curriculum is to be followed during apprenticeship, a certain amount of leisure must be allowed; and an ideal course, with the necessary private study, would absorb practically half the student's working time. Throughout the country there are now established university and other colleges, technical schools, and the like, and many of these have already arranged pharmaceutical courses. A typical three-years' course would be somewhat as follows:

First Year.

Chemistry	2	hours a week
Practical chemistry	2	"
Materia medica	2	"
Pharmacy	2	"
Physics...	1	"
Total	10	"

Second Year.

Chemistry	2	hours a week
Practical chemistry	3	"
Botany	1	"
Practical botany	2	"
Materia medica	1	"
Pharmacy	1	"
Total	10	"

Third Year.

Chemistry	2	hours a week
Practical chemistry	3	"
Botany	1	"
Practical botany	2	"
Materia medica	1	"
Pharmacy	1	"
Total	10	"

Such a course can be taken at the University College, Bristol; the Municipal Technical College, Bradford; the Municipal Technical College, Derby; the Royal Albert Memorial College, Exeter; the University College, Nottingham; the University College, Reading; the University College, Sheffield; and Owens College, Manchester; and, doubtless, could be arranged at many other public and private colleges and schools. The arrangements for the classes, of course, differ locally, but in most places classes can be taken either in the day or evening, as best suits the student's convenience. The expense of such a curriculum would not be greater than a full-time course taken subsequent to apprenticeship.

Discussion.

Mr. Newsholme said the matter is not a new one. A similar curriculum has been in use in different parts of the country, and he hoped there would be no difficulty in laying down such a course in other parts. He would like, however, to add that masters will require in future to allow their apprentices more time for education.

Mr. Gadd briefly replied, and said his proposed curriculum was a composite affair made up of the best features of several curricula.

The President moved the usual vote of thanks, and as it was now close on four o'clock five papers (not Mr. Matthews's) were taken as read, but attention was called to the features of the papers, votes of thanks having been given.

The Pharmacology of the Suprarenal Gland.

By J. C. McWalter, M.A., M.D., D.Ph.

Fifty years ago only anatomists knew that a little mass of fleshy-looking substance, shaped like the cocked hat of a in soldier, might be found in the mass of tissue which surrounds the top of the kidney. Its function was quite unknown until Addison observed that it was almost the only organ invariably affected in a peculiar disease which bronzes its victims like a quadroon, and causes the sufferer to wither and waste away. About a year later the French physiologist, Brown-Séquard, concluded an exhaustive examination of the functions of these glands and demonstrated (1) that they are essential to life, (2) that they modify or destroy a substance which otherwise transforms itself into a pigment and stains the skin, (3) that when the organs are removed this substance collects in the blood, and (4) that removal is rapidly fatal, and injection of the blood of an animal thus treated into a healthy animal leads to symptoms like those of removal. The cause of the bronzing of the skin is thus obvious, and the pathology of Addison's disease is made manifest. In 1897 it was discovered that a solution or extract of a gland dropped in the eye causes blanching, and this observation was followed up by Bates, who concluded that the gland extract is an astringent for inflammations, a hæmostatic, and a tonic to the muscular fibres. Many other investigators have followed the matter up, and the author gave an account of their observations, particularly those made by Dr. John J. Abel, of Johns Hopkins University, who obtained an alkaloidal substance from the gland in the form of a benzoate and later the base itself in the form of a fine crystalline powder having the formula $C_{17}H_{15}NO_4$. Reference was also made to solution of adrenalin, and the author suggested that pharmacists themselves may be able to produce a preparation of the gland having similar properties. His formula is as follows:

Fresh adrenal glands of the sheep finely chopped	5 parts
Alcohol	1 part
Acetic acid	0·1 part
Glycerin	1 part
Distilled water	3 parts

Macerate for three days, and filter the liquid throught lint.

The resulting preparation resembles liquor pepsini in character, and the author has found it a good substitute for adrenalin solution, especially for affections of the tonsils and nose. Clinical observations go to show that it acts admirably. It approximates in strength to the solution of the American makers when diluted to 1 in 2,000, but for ophthalmological purposes it appears not to be equal in adrenalin solution. The author further observed that the adrenal gland of the heifer is more effective than that of the sheep. Such glands should be procured, if possible, with the covering of the natural fat so as to prevent contamination, and when it comes to treating them for the preparation all operations should be conducted on perfectly aseptic principles. The following is the formula which he recommended for the treatment of these glands:

Adrenal capsule of the cow ...	10 parts
Boric acid	1 part
Glycerin	2 parts
Distilled water	6 parts
Alcohol	2 parts

Macerate for three days, and press.

The yield will be about twelve parts. This solution keeps well.

The Non-existence of Mydriatic Alkaloid in Lactuca Virosa.

By J. O. Braithwaite and H. E. Stevenson.

In a communication to the Chemical Society some years ago, T. S. Dymond announced the isolation of hyoscyamine from "commercial specimens of extract of wild lettuce and of the variety of the edible plant known as cos lettuce, and from a dried flowering-plant of the wild lettuce." Although the matter attracted some attention at the time among pharmacists, who had not expected the occurrence of this alkaloid in a member of the natural order *Compositæ*, it does not seem to have occurred to anyone to employ the very delicate and sensitive physiological test with the juice of the plants, and thus confirm or refute the conclusions of the author. The recent appearance of a considerable number of plants of the wild lettuce, *Lactuca virosa*, at Hale End and Chingford, in Essex, attracted the authors' attention to the subject and furnished them with material for applying the test. This they have done with negative results, being unable to obtain the least trace of mydriatic action by the application to the eye of such solutions as would contain hyoscyamine were that base present in the plant. They described how they worked with 400 grams of the plant, ultimately evaporating the ether which should have contained the alkaloid from the ammoniated liquors. An acid-aqueous solution of the ethereal residue applied to the eye failed to give the slightest indication of mydriasis. The observation was confirmed by a second trial, and the authors were forced to the conclusion that wild *Lactuca virosa* does not contain a mydriatic alkaloid, even in such minute trace as will give the very delicate physiological reaction.

Determination of Morphine in Opium.

A Comparison of Dieterich's Process with that of the British Pharmacopœia.

By Harold E. Matthews.

In *Helfenberger Annalen* for 1896, E. Dieterich published the following process for the determination of morphine in opium:

Triturate 6 grams of opium in fine powder with 6 grams of water, dilute, wash out into a weighed flask, and make up to 54 grams with water. Let the whole digest for fifteen minutes, shaking frequently, and then filter through a folded filter 10 centimetres in diameter. Take 42 grams of the filtrate, mix with 2 grams dilute ammonia* (1·7 per cent. NH_3) by rotation not shaking, and filter through a neatly folded filter 10 centimetres in diameter. Mix 36 grams of the filtrate in an accurately weighed flask with 10 grams of ethyl acetate by rotation, add 4 grams of dilute ammonia, close the flask, and shake well for ten minutes.

In order to separate the resulting emulsion add immediately 10 grams of ethyl acetate and carefully pour off the etherial layer as completely as possible. Again add 10 grams of ethyl acetate and repeat the decantation. Pour the remaining liquid in the flask (leaving behind the crystals adhering to the flask) through a filter 8 centimetres in diameter, and filter twice with 5 c.c. of water saturated with ethyl acetate. When the flask has well drained and the filter is dry (dried at 100° C.) remove the crystals on the filter to the flask by means of a camel's-hair brush. Set the flask to dry immediately, and dry till the weight is constant.

It will be seen that the morphine weighed is intended to represent $3\frac{9}{11}$ grams of opium ($\frac{36}{44}$ of $\frac{42}{54}$ of 6), but the successive quantities of the morphine containing liquor which are weighed off are obviously more concentrated as regards morphine-content than the bulk of which they are a fraction.

It may be asked if digestion in water for fifteen minutes is sufficient to extract the morphine from finely powdered opium. It was found that the figure obtained on digesting for a longer period was practically the same as that from a digestion of the specified duration.

The precipitation of narcotine previous to precipitation of morphine is attended with the possibility of loss of morphine in the case of an opium containing but little narcotine. The process is easily carried out and is very expeditious, the whole of the operations up to the point of drying the morphine crystals occupying about an hour. It should be noted that a temperature of 100° C. is mentioned as sufficient for drying the morphine crystals, whereas 110° C. (B.P.) or (according to W. Gohlich) 120° C. is necessary to render morphine anhydrous, and to get concordant results.

To make a comparison, several analyses of the same sample of good Turkey opium were made by Dieterich's process and that of the British Pharmacopœia, but in both cases the morphine was dried at 110° C., and subsequently titrated as in the B.P. process. The results are given in the following table:

	Total yield of morphine	Pure morphine by titration	Per cent. purity of the morphine	Percentage pure anhydrous morphine
Dieterich 1	0 5921	0·5875	99·23	15·39
2	0·5964	0·5913	99·14	15·49
3	0·5954	0·5948	99·9	15·58
Average	0 5946	0·5912	99·42	15·49
B.P 5	1·5720	1·5680	99·76	15·68
6	1·5633	1·5550	99·47	15·55
Average	1·5676	1·5615	99·61	15·61

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* A mixture of 17·8 liquid ammonia, Ph.G., and 8·78 water.

Dieterich's process involves less waste of the opium than British Pharmacopœia process, and has the further advantage of being much more expeditious. But it is not quite as exact as the B.P. process, giving a morphine which is less pure, and a smaller total morphine yield.

In the preceding table it should be noted that there is a wide discrepancy between titration No. 3 and the two previous ones. Indeed, if this be neglected and the mean of the two previous determinations taken, the superiority of the B.P. process as regards accuracy appears to be even greater To the buyers of opium this process of Dieterich's appears to me to be a valuable one when slightly modified—on account of the rapidity with which a determination can be made—the results obtained being sufficiently accurate for commercial purposes; but the Pharmacopœial process is certainly the better for the exact standardisation of galenical preparations of this most important drug.

Chloroforms of Belladonna and Aconite.

By R. Wright, F.C.S., Phar. Chem.

This was a lengthy paper detailing experiments made with a view to improving these preparations.

Chloroformum Belladonnæ.

The "Formulary" process has been criticised by P. W. Squire, whose observations have been confirmed by W. A. H. Naylor. The author examined six commercial samples by a modification of the official process, and obtained from 100 c.c. of each of them (1) 0·016, (2) 0·018, (3) 0·122, (4) 0·096, (5) 0·012, and (6) 0·032 grams of alkaloid. The maximum amount possible in a strictly B.P.C. preparation would be from 0·2 to 0·4 gram per 100 c.c.

In experiments on alternative processes two samples of English belladonna-root in No. 60 powder were used. They yielded (A) 0·30 per cent. and (B) 0·38 per cent. of alkaloid. Six methods of making the preparation were tried—viz., (1) Simple percolation—that is, Squire's original process (4 oz. of product from 4 oz. of root); (2) B.P.C. process (6 oz. of product from 4 oz. of root); (3) acid process (1) with 4 oz. of chloroform, containing 1 per cent. by volume glacial acetic acid (4 oz. of product from 4 oz. of root); (4) acid process (2) same as No. 3, but 2 per cent. of the acid (product the same); (5) Squire's alkaline process ("Companion," ed. xvi., page 127) (4 oz. of product from 4 oz. of root); (6) ammoniated-chloroform process; and (7) the following method:

Belladonna-root in No. 60 powder...	4 oz.
Potassium carbonate	½ oz.
Distilled water	4 oz.

Dissolve the potassium carbonate in the distilled water, moisten the powder thoroughly, set aside for twelve hours, dry carefully, reduce to No. 60 powder, pack in a conical percolator, percolate to 4 fl. oz.

The preparations obtained were assayed, and found to yield the following proportions of alkaloid (grams per 100 c.c.):

No. 1 (Squire's) 0·048 and (simple percolation) 0·032.
No. 2 (B.P.C.) 0·006 and 0·004.
No. 3 (Acid process 1) 0·048 and 0·044.
No. 4 (Acid process 2) 0·084 and 0·098.
No. 5 (Squire's alkaline) 0·080 and 0·072.
No. 6 (Ammoniated chloroform) 0·040 and 0·076.
No. 7 (Potassium carbonate) 0·008 and 0·016.

[Note: a yield of 0·04 = 1 per cent. approximate degree of exhaustion.]

These results show that both process and menstruum require modification. As to the process a modification is required so as to bring the particles of the drug into closer contact during percolation, thus ensuring complete penetration of the tissues by the menstruum. This can be expedited by using the drug in very fine powder, and still more by moistening the powder with menstruum before transferring to the percolator. The menstrua which promised best were absolute alcohol (either pure or ammoniated) and glacial acetic acid. It was not feasible to reduce the belladonna-root to a finer powder than No. 60. In fresh experiments 4 oz. of this powder was moistened first with glacial acetic acid ½ fl. dr., absolute alcohol 1 fl. dr., and chloroform 1 fl. oz., then percolated with a mixture of 7 vol. chloroform and 1 vol. alcohol in three fractions (1) 4 fl. oz., (2) and (3) 2 fl. oz. each. In the second experiment the same quantity of root was moistened with glacial acetic acid 1 fl. dr., and absolute alcohol 1 fl. oz., and in twelve hours then percolated with chloroform, fractions as above being collected. In a third experiment glacial acetic acid 1 fl. dr. and chloroform 15 fl. dr. were used to moisten the root, and this percolated after twelve hours with chloroform in fractions. A fourth was moistened with absolute alcohol 2 fl. dr. and chloroform 14 fl. dr., packed quickly and firmly, and percolated with the same menstruum in fractions.

The results obtained with the A root, expressed in grams alkaloid per 100 c.c. were (F. = fraction):

No. 1 Process.—F. 1, 0·100; F. 2, 0·048; and F. 3, 0·032.
No. 2 Process.—F. 1, 0·100; F. 2, 0·048; and F. 3, 0·020.
No. 3 Process.—F. 1, 0·110; and F. 2, 0·302.
No. 4 Process.—F. 1, 0·162; F. 2, 0·068; and F. 3, 0·048.

The figures show that the best result is obtained with a menstruum containing alcohol. Squire states ("Companion," page 126) that the best alkaloidal solvent for belladonna is ammoniated alcohol. The author tried it with chloroform, as in No. 4 Process, and found F. 1 to give 0·196, and F. 2, 0·048. This shows 65 per cent. of the available alkaloids in the first fraction, and is the best result so far. The experiments were repeated with another sample of the drug (assaying 0·5 per cent.), and the result was even more satisfactory, the ammoniated menstruum again coming out best. The one objection to be urged against the employment of an ammoniated menstruum is that the natural combination of the alkaloid in the drug is disturbed, and that *pro tanto* the product ceases to be a true galenical.

Chloroformum Aconiti.

Six commercial samples were examined. They showed an average of 0·037 alkaloid per 100 c.c., the lowest being 0·016, and the highest 0·080.

Experimental samples were prepared from English aconite-root yielding on assay 0·46 per cent. total alkaloid. The processes followed were the same as those outlined under belladonna, and the results in grams of alkaloid per 100 c.c. were: No. 1 (simple percolation), 0·172; No. 2 (B.P.C.), 0·014; No. 3 (acid 1), 0·224; No. 4 (acid 2), 0·220; No. 5 (alkaline), 0·180; and No. 6 (ammoniated chloroform), 0·196.

Fractional percolation was also tried, with the following results:

No. 1.—F. 1, 0·372; F. 2, 0·032; and F. 3, 0·028.
No. 2.—F. 1, 0·365; F. 2, 0·048; and F. 3, 0·040.
No. 3.—F. 1, 0·328; F. 2, 0·024; and F. 3, 0·004.
No. 4.—F. 1, 0·404; F. 2, 0·044; and F. 3, 0·040.

The author summed up by saying that chloroform alone is not a good solvent for the alkaloids of belladonna in their natural state of combination in the drug. It is better adapted for the extraction of the aconite alkaloids, probably because these exist largely in a free condition in the root. In order to facilitate extraction, several expedients may be resorted to, and these are substantially incorporated in the following recommendation to the Formulary Committee:

The form may be outlined as follows: Take of a mixture of—

Ammoniated alcohol	1 volume
Chloroform	7 volumes

a sufficient quantity. Moisten the powder quickly and thoroughly with 10 fl. oz. of the menstruum. Pack firmly in a conical percolator provided with a closely fitting cover. Pour on successive quantities of the menstruum, and allow percolation to proceed until 1 pint has been collected.

Mr. Wright acknowledged the kindness of Messrs. Wright Layman & Umney in supplying him with English belladonna-root for the experiments.

The Refractive Index of Essential Oils.

By Ernest J. Parry, B.Sc., &c.

The refractive index of essential oils has long been put on one side as not affording information commensurate with the trouble involved in its determination. In many cases there can be no doubt that this is the only conclusion one could arrive at—as, for example, the oils of the citrus family. The following are figures obtained for normal samples of lemon and orange oil, together with those of oil of turpentine and lemon terpenes. (All determinations are for the D line at 20° C.):

Oil of Lemon	Oil of Orange	Oil of Turpentine	Lemon Terpenes
1·47575 1·47485 1·47448 1·47385	1·47350 1·47460	1·47059 1·47208 1·47200	1·47458 1·47521

It is clear that nothing more than a vague indication can be obtained in cases of admixture of either lemon or orange oil with large quantities of either lemon terpenes or turpentine. A direct determination of the refractive index on many essential oils will lead to identical results, although there are cases where very clear indications, not only of adulteration, but also of the adulterant, may be obtained.

It is not, however, until the oil is fractionated, and the fractions of fairly constant properties are thus examined, that the full value of the refractive index is rendered apparent. The oils, not being constant mixtures, may have practically identical refractive indices although they are very different in composition. But fractions obtained at definite temperatures may be expected to have fairly constant characters, and an examination of a fractionated oil often leads to very useful results. The great value of the refractive index of essential oils, when appreciated in this way, has been emphasised by Burgess and Child on several occasions, and quite recently John C. Umney, Bennett, and the author have used it to very great advantage. The recent papers on citronella oil and peppermint oil, published by Bennett and the author in The Chemist and Druggist, have demonstrated the valuable information which has thus been obtained. The author quoted some figures from these, and promised more, also inviting other observers to contribute their results. Meanwhile he submitted the following. The figures for otto of rose are valuable, as geraniol and so-called Indian or Turkish geranium oil have much higher refractive indices than otto of rose (or citronellol). The subjoined figures refer to (1) five samples of pure otto of rose of this season's crop; (2) two samples of commercial geraniol; (3) four samples of "Turkish" geranium oil; and (4) two samples of citronellol:

Otto of rose, pure ...	1·46190, 1·46095, 1·46148, 1·46145, 1·46208
Geraniol	1·47923, 1·47995
Turkish geranium oil	1·47602, 1·48055, 1·47958, 1·47850
Citronellol	1·45718

Several commercial samples had refractive indices of 1·46700 to 1·47100, and were open to grave suspicion.

Agricultural and Horticultural Poisons.

By E. M. Holmes, F.L.S.

The importance attached to the scientific study of agriculture and horticulture during recent years has naturally increased the demand for insecticides and fungicides for destroying animal and vegetable pests. Some of the chemicals used for these purposes, such as potassium sulphide, Bordeaux mixture (lime and copper), ammoniated-copper preparations, carbon bisulphide, white hellebore, tobacco-paper, kerosene-emulsion, sulphur, ferrous sulphate, preparations of tar, quassia-powder, and similar substances, are not statutory poisons, and can be sold without restriction by anyone. A few, such as corrosive sublimate, Paris green, white arsenic and its preparations, and potassium and sodium cyanides, come within the scope of the Pharmacy Act, 1868, and cannot be sold by retail except by registered chemists, subject to the strict regulations prescribed by the Act. On account of ignorance it has been persistently stated that chemists want a "monopoly" of the sale of poisons, in order to make huge profits by such sale. The author showed how incorrect this is, referred to the cost to the Pharmaceutical Society of the enforcement of the Act, and to the Ballikinrain ant-destroyer case. He then went on to say that there is no imperative necessity for the use of arsenic or any other scheduled poison for killing ants and other insects, since there are in the market, easily obtainable and equally efficacious, several non-poisonous preparations for the same purpose. He considered that to repeal the Act would be absurd, since the reason for its enactment was to restrict the retail sale to the public of such poisons as much as possible. He also disputed the statement that chemists are unable to give advice concerning the use of agricultural and horticultural preparations. It is beyond dispute that no one class of the community has devoted more time and applied its scientific knowledge to perfecting processes and improving well-known preparations than the chemist, and no one has more freely published the results of his scientific work on the subject. As an example in point he mentioned Mr. G. F. Strawson's recent paper on "Standard Fungicides and Insecticides in Agriculture," which has received the approval of many influential members of the Royal Agricultura Society.

Judging from inquiries made recently at the Royal Agricultural Show at Park Royal, the majority of wholesale dealers—such as the large florists and dealers in agricultural preparations—prefer to sell non-poisonous articles. But the conservatism of the untravelled British farmer and of the homely shepherd keeps up some demand for the more poisonous articles, as giving less trouble, whilst the risk is ignored. It is only this circumstance that prevents to a great extent the use of newer and safer remedies, since harmless preparations not containing scheduled poisons are readily obtainable, and are constantly advertised in agricultural and horticultural journals.

The danger of using poisons like arsenic and Paris green was referred to by the author, and he considered that pharmacists, as the legal guardians of the public safety, so far as the sale of poisons is concerned, should aid the Government in endeavouring to reduce the death-rate resulting from the accidental or intentional use of dangerous poisons—

(1) By strongly opposing any attempt to extend the sale of scheduled poisons to persons not fitted by the necessary education to safeguard their uses; and

(2) by endeavouring to discover substances which are non-poisonous to human beings, and yet will effectually replace white arsenic, nicotine, and potassium cyanide, or their preparations at present in use.

The plants that are used in other countries as insecticides and insectifuges have not as yet by any means been fully exploited, nor have the number of chemical substances obnoxious to insects and fungi been fully investigated. Thus, the tea-seed cake used by the Chinese as a vermifuge on lawns, and the "tuba" root used in the Straits Settlements as an insecticide, have scarcely been tried in this country, while the value of acrid substances, such as cayenne pepper, euphorbium, and lobelia, have not been turned to account. Mustard is sometimes used to rid flower-pots of worms, but a full use has not been made of many powerfully odorous but harmless substances which are objectionable to insects. Recent careful experiments have shown that tannin, oxalic acid, and other chemical substances found in plants protect them from the attacks of slugs and snails, and ordinary observation shows that some plants, such as elder, *Euphorbia*, and *Campanula*, are hardly ever attacked by caterpillars. The constituents of such plants are deserving of experiment as insecticides, and in organic chemistry there is work in the synthesis of such bodies as the active principle of *Pyrethrum cinerariæfolium*, the only bar to the use of which is its expense. The chemical nature of the poisons employed by spiders and other insects in killing their prey is also worthy of investigation, while further research is necessary with regard to the study of wild plants that carry diseases to those under cultivation. Thus, it is well known that *Dulcamara* and other Solanaceous weeds in hedges may carry the potato-disease on from year to year in cultivated ground, and the barberry in hedges carries one form of the disease that attacks wheat, and will communicate it to the crop. Dr. Plowright's researches have shown many instances of this habit in fungi of living part of their life on one plant and part on another.

The same kind of research is also needed concerning the habits of insects. Thus, it is well known that the bark of the plum-tree, so often planted (because tithe-free) in Kentish hedges, serves as the home of the winter-stage hop-aphis when the hops are cut down. It is also recognised as a fact that oily or fatty preparations, if applied to insects so as to cover their spiracles or breathing-pores, rapidly kill them by simple asphyxiation, and, if oil be combined with a strong-smelling preparation like that of peat-wood or coal-tar, it will prevent the insects in the imago or fly stage from depositing their eggs on animals. We find, when the life-story of an animal is known, there are always some periods in its existence at which it can be more easily prevented from propagating its species, and such knowledge can profitably be turned to account. It has been shown by a lady who read a paper at a recent meeting of the Linnean Society that even the minute scale insects which are so difficult to destroy have a natural enemy in the form of an internal parasite which reduces their numbers. Sufficient attention has not been paid to the insect friends of the gardener and farmer, such as the ladybird larvæ, the lace-wing fly, ichneumon flies, and various sylphid flies and *Hymenoptera*. In view of the disturbance of the balance of Nature, owing to the destruction of many useful birds, it seems highly probable that in the future some of the more minute insect friends of man will have to be specially cultivated for use on farms and in gardens. As many pharmacists possess a love of natural history, the author suggested that if they exercise their hobby in this practical direction they will fine it possible to combine business with pleasure.

Closing Proceedings.

BELL AND HILLS FUND.

The PRESIDENT on behalf of the Conference presented to the Bristol Society a set of books provided out of the Bell and Hills Fund. He expressed the pleasure it afforded him to make this presentation, mentioning that the books were for the use of friends in Bristol.

Mr. J. W. WHITE formally received the gift, and spoke of the appreciation with which the Bristol members regarded it.

ELECTION OF FORMULARY COMMITTEE.

Mr. RUTHERFORD HILL moved the appointment of the Formulary Committee as follows: Messrs. N. H. Martin (Chairman), A. C. Abraham, W. A. H. Naylor, Peter Boa, C. Symes, F. Ransom, W. F. Wells, J. C. Umney, Harold Wilson, R. Wright, Harry Wilson, and F. C. J. Bird (Secretary). He said that the work of the Committee was one of the most distinctive and useful features of the Conference. It had done most valuable work in the past. He believed at the present moment the Committee had before it a large amount of important and useful work, which was under consideration. It had been said that recently less attention had been paid to this Committee and its duties; and he thought the reason of this was that at the start its work was carried on with such energy, foresight, and diligence, that it had met and filled up the wants for some years to come. Now, under existing circumstances and in view of some recent events, the Committee might come to be a very important body indeed. Lately there had been a call for some standard formulary, issued in the name of some recognised and authoritative body, which might be available for a purpose that he would not enter into in detail—it was present in the minds of most members of Conference what he alluded to—and he thought this Committee might very well provide such a formulary. With such a Committee such a formulary would be produced with prudence and discretion, with regard to the high standard of professional honour, and without the slightest attempt to cater to any unworthy motive. (Hear, hear.) It would be also thoroughly practicable, and that was a very important element. They regretted that Mr. Naylor had given up the secretarial duties, and they all endorsed the thanks the Committee had accorded him—(applause)—and were glad that his place was to be taken by Mr. Bird. (Applause.)

Mr. GERRARD seconded the motion. He said he knew every member of the Committee, which had done excellent practical work in the past, and, like other members of Conference, he expected it to do good practical work in the future. (Applause.) He knew it was the intention of the members of the Committee to carry on that good work, and there would undoubtedly be plenty for them to do. (Applause.)

The motion was adopted.

THE CONFERENCE TO VISIT SHEFFIELD.

Mr. NEWSHOLME extended to the Conference a hearty invitation to hold next year's meeting at Sheffield. He said that twenty-four years had elapsed since their previous visit. Those who took part in the last Conference held in Sheffield had a very happy recollection of that gathering, and some of them had been looking forward for some years to a return visit. They had hoped it might have been fixed a little earlier, but he found that they were, after all, not so long in inviting the Conference to Sheffield as some other cities and towns had been in securing a return visit. At the Dundee meeting he gave a sort of hint that he would at the Bristol Conference advance this invitation. He felt that if he had the command of language—the magnificent eloquence of the President of the Pharmaceutical Society—he could describe to them in glowing terms the beauties of their huge chimneys at Sheffield—(laughter)—its enormous blast-furnaces (laughter)—and its huge mountains of refuse from coal-pits. (Laughter.) There was a bright side to these commercial and industrial characteristics—they brought money. (Hear, hear.) Further, Sheffield had magnificent surroundings. It had thousands of acres of moorland, and then there were Chatsworth House and Haddon Hall to be remembered. They would do what they could to enable their visitors to see some of the beauties of Derbyshire. (Applause.)

Mr. FOX supported the invitation, emphasising the fact that Sheffield had very beautiful surroundings. It possessed, he added, a very efficient tramway service, which would carry a visitor to any part of the city for a penny. It had parks which were amongst the finest in the kingdom. The Ruskin Museum would be of interest to many members; and other museums and picture-galleries, and some of their distinctive manufactories, would well repay a visit. (Applause.)

Mr. G. SQUIRE also supported the invitation.

Mr. BEGGS proposed that the invitation should be accepted, observing that when they went to Sheffield they would see something out of the common. Irishmen were told that they had a sharp wit, but when they got to Sheffield goodness knew when they would go back—they would be sharpened to such an extent that Ireland would not hold them. (Laughter and applause.)

Mr. E. EVANS, jun., seconded the motion, saying he knew what a Yorkshire welcome meant. They owed a debt of gratitude to Sheffield for having for three years past provided one of the most popular Presidents of the Pharmaceutical Society, and they should all the more heartily accept his invitation. (Hear, hear, and applause.)

The PRESIDENT cordially supported the motion, which was carried with acclamation.

THANKS TO MR. F. RANSOM.

Mr. NAYLOR proposed—

> That the British Pharmaceutical Conference regrets that Mr. Ransom has felt it obligatory to tender his resignation as senior Hon. Secretary of the Conference, and the members offer their sincere and heartiest thanks for his long and valuable services.

(Applause.) He said that this was one of the occasions when one felt what a very poor vehicle language was for the expression of one's deepest feelings, and especially when one was required and desired to express sentiments of gratitude. He was sure that they all learned with the very deepest regret that the senior Hon. General Secretary of the Conference had felt it incumbent upon him to tender his resignation. (Hear, hear.) He had held the position for the past thirteen years; he had filled it with the greatest possible advantage to the Conference, and he had adorned that position. (Applause.) They all knew how he had laboured for the good of the Conference during this long period. His work had been unstinted. Years ago he sought to know the need of the Conference, and then he applied himself assiduously to that need. During this period they had found in him a man wise in counsel, a man of great industry and indefatigable zeal, a man with one consuming desire—namely, to further the interests of the British Pharmaceutical Conference; and in that work he had admirably succeeded. (Applause.) Personally, he regretted that the President of the Conference had not such patronage that he could bestow upon Mr. Ransom some great distinction—a distinguished-service order—(laughter and applause)—but he believed they would that day do that which they could do—they would elevate Mr. Ransom to the position of one of the Vice-Presidents of the Conference. (Applause.) Mrs. Ransom had admirably seconded the efforts of Mr. Ransom in connection with the work of the Conference. (Applause.)

Dr. Symes seconded the proposition. He said they all deeply regretted that they were losing Mr. Ransom's services as one of the Hon. Secretaries.

The President endorsed everything which had been said by Mr. Naylor and Dr. Symes. He said that to know Mr. Ransom was to love him.

The motion was carried with applause.

Mr. Ransom, who was received with renewed cheers, said that on an occasion like that he particularly felt the lack of the great eloquence which Mr. Naylor possessed, and he felt unable to express his deep gratitude for the kind and undeserved words which had been spoken and for the kindness with which the Conference had received the resolution. Any success which had attended the Conference during the years he had been in office had been due almost entirely to the good fortune he had had in the officers with whom he had been associated. For the greater part of the time he had had Mr. Naylor as his colleague, and it would have been impossible to have had one more suitable; and since his retirement Mr. Peck had most ably taken his place. (Hear, hear.) He left the reins of office in Mr. Peck's hands with the perfect certainty that he would maintain the success of the Conference so far as the duties of the Secretary went. (Applause.) Great service was also rendered the Conference by the Hon. Treasurer (Mr. Umney), who did real work for it and devoted much time and attention to its business. (Applause.) Whilst he had been Secretary he had formed many friendships, which he hoped would be lifelong. (Hear, hear.) His interest in the Conference would not cease, but would still increase, and he would watch with great interest its success and progress. (Applause.) He expressed his thanks for the kind references which had been made to Mrs. Ransom. (Applause.)

Election of Officers.

Mr. Atkins moved the election of officers for the ensuing year, the list being as follows: President, T. H. Williams Idris, L.C.C., J.P., F.C.S., London; Vice-Presidents, F. Ransom Hitchin; G. T. W. Newsholme, F.C.S., Sheffield; G. D. Beggs, M.P.S.I., Dalkey, co. Dublin; Peter Boa, Edinburgh; W. A. H. Naylor, F.I.C., F.C.S., London; D. B. Dott, Edinburgh; Hon. Treasurer, J. C. Umney, F.C.S., London; Hon. General Secretaries, E. Saville Peck, Cambridge, and Edmund White, B.Sc., London; Hon. Local Secretary, H. Antcliffe, Sheffield; Assistant Secretary, John Hearn; Executive Committee, F. C. J. Bird, London; Professor Greenish, F.I.C., F.L.S., London; H. E. Matthews, Bristol; C. T. Tyrer, London; H. E. Boorne, H. W. Gadd, Exeter; W. Garsed, London; R. Wright, Buxton; G. Squire, Sheffield. Mr. Atkins said they rejoiced that Mr. Idris would be President for another year, and the names of all his colleagues carried weight and influence. (Applause.)

Mr. E. White, B.Sc.
(The new Secretary.)

Mr. Druce seconded the motion.

The President said it was a very great satisfaction to know that Mr. E. White was going to join in the hon. secretarial duties. (Applause.)

The motion was carried.

Votes of Thanks.

Mr. Atkins proposed that the warmest thanks of the visiting members of the Conference should be given the Local Committee.

Mr. Kerr seconded, and the resolution was agreed to.

Felicitous replies were made by Mr. J. W. White (President of the Local Executive), Mr. H. E. Boorne (Hon. Secretary), Mr. G. T. Turner (one of the Vice-Presidents), and Mr. H. E. Matthews (Hon. Treasurer).

Dr. Power proposed a vote of thanks to Professor Lloyd Morgan for his address of welcome, and to the Council of University College for granting the Conference the use of their lecture-halls.

Sir T. Robinson seconded the motion, and it was adopted.

On the motion of Mr. Druce, seconded by Mr. Tyrer, a vote of thanks was accorded the President of the Conference.

The President acknowledged the compliment, and proposed a vote of thanks to the Secretaries, Mr. Ransom and Mr. Peck.

Mr. Maben seconded the proposition, which was agreed to, and Mr. Peck's reply concluded the official proceedings.

For "Conference Chat" and a list of who were at Bristol see the Coloured Supplement in this issue.

Business Changes.

Mr. W. H. Godden, chemist and druggist, will shortly be opening a pharmacy at 92 Alma Road, Southampton.

Messrs. R. T. Turnbull & Co., Australian merchants, have removed from 5 East India Avenue to 4 Lloyd's Avenue, E.C.

Mr. W. A. Savill, chemist and druggist, has sold his business at Bognor, and opened at High Street, Littlehampton.

Trade Notes.

Post-card Photography.—An excellent series of picture post-cards has been issued by Messrs. Gibson & Son, chemists and photographers, Hexham. The "Hexham Series" is extremely interesting, and many charming pictures of the locality are excellently reproduced.

Photographic Catalogue.—The new edition of the photographic catalogue of Messrs. W. Watson & Sons, 313 High Holborn, W.C., has just been issued. It contains over two hundred pages, and in those pages is a capital selection of photographic apparatus and accessories.

A new Illustrated Price-list has just been issued by Messrs. Jules Denoual & Co., Carlton Works, New Cross Road, S.E. It is well printed on surface-paper, and the illustrations are numerous. Capsules and perles are, of course, predominant, but pastilles and jujubes, lozenges, cachous, compressed tablets, suppositories, and various drugs, chemicals, and sundries are included, while the essentials of the art of perfumery and all the requisites are set forth in detail.

Christmas Perfumery.—The Crown Perfumery Company are now showing at 108 and 109 Fore Street, E.C., a fine range of Christmas novelties, which are exceptionally attractive, and give the retailer more than average profit. Mr. J. R. Steadman, who has been connected with the firm for many years, and who is now representing them in the north of England and Scotland, will start his journey next week, so that our brethren in the north will soon be able to judge for themselves.

Photographers' Note-book.—Messrs. Geo. Houghton & Son (Limited), 88 and 89 High Holborn, W.C., send us a copy of the new edition of the "Photographers' Peerless Notebook," which, in conjunction with Messrs. C. Letts & Co., they have produced. The book is on the same lines as previous issues, and contains a policy that insures the holder against accidents. An appendix gives a fairly complete list of photographic dealers and information as to dark-rooms available. The note-book sells at 1*s*.

Last year 310 tons of sulphate of copper was shipped to Brindisi, against 1,009 tons in 1901 and 612 tons in 1900. The imports are almost exclusively of British make.

Legal Reports.

Co-operation and Cutting-prices.—The Sales Company (Limited) have brought an action against a large firm of wholesale grocers in Sheffield—Messrs. Carter & Smith—claiming 63*l.* alleged to be due for liquidated damages for three breaches of an agreement made with the plaintiffs in regard to sale of Fels Naptha soap to co-operative societies. The case, which was heard before Judge Mansel-Jones in the Sheffield County Court on July 23, is practically on all-fours with the case brought by the plaintiffs against the Northern Co-operative Company at Aberdeen (see *C. & D.*, vol. lxii., pages 860, 938, 978, and 1017). Mr. Hume Williams, K.C., was for the plaintiffs, and his contention was that the Co-operative Society (to which the plaintiffs sold Fels Naptha soap) divided its profits amongst its members, thus reducing the price from 2½*d.* per tablet to one-third of a penny less, and this constituted a breach of the anti-cutting agreement into which the defendants had entered with the plaintiffs. After hearing the evidence and considerable legal argument, judgment was reserved.

High Court Cases.

SACCHARIN CORPORATION *v.* MONNET.

BEFORE Mr. Justice Swinfen Eady in the Chancery Division on Friday, July 24, Mr. Eve, K.C., moved for an injunction to restrain the defendant in breach of an agreement dated February 11, 1897, from entering into the employment of another company, of which he had been constituted a director, for the purpose of selling saccharin in this country. The company were called Chemicals and Saccharin (Limited), the capital of the company was 10,000*l.*, and the object was to carry on the business of manufacturing chemists and importers and manufacturers of saccharin and kindred articles. Their registered office was 20 Victoria Street, London, and the company were building a factory near Geneva, with the assistance of the defendant, for the manufacture of saccharin for sale in this country. The man at the bottom of the formation of the company was named White, who had been fined hundreds of thousands of pounds for surreptitiously introducing saccharin into this country. [This is incorrect (see *C. & D.* last week).—ED.]

His Lordship: Do the plaintiffs hold all the saccharin patents?

Mr. Eve said that would be a dangerous thing to say, as they were so numerous, but they were the only persons carrying on the business in this country, they having got rid of all their rivals. They contended that they had all the patents.

His Lordship said it seemed to be a clear breach of action, and granted an injunction till judgment or further order.

HOLLOWAY'S PILLS.

Mr. Justice Swinfen Eady, in the Chancery Division, on Tuesday, July 28, had before him the action of Holloway *v.* Clent, the plaintiff, Thos. Holloway, moving for judgment in default of defence. It is a Birmingham case, and on June 19 his Lordship had granted an interim injunction restraining the defendant from trading and selling pills in the name of Holloway, so using the reputation of "Holloway's pills," which was the property of the successors of Thos. Holloway, of 78 New Oxford Street, London. The statement of claim had been amended by seeking to prevent the defendant from selling ointment as well as pills. The defendant had delivered no defence, but agreed to a perpetual injunction restraining him from using the name.

Customs Acts.

ALLEGED SMUGGLING OF SACCHARIN.—CLAIM FOR HEAVY PENALTIES.

IN the King's Bench Division on Thursday, July 30, the Lord Chief Justice and a special jury, in the case of the Attorney-General *v.* Coates, heard an information laid on behalf of His Majesty's Customs, alleging that the defendant, Thomas C. Coates, manager of the Mineral-waters Aëration Company, Camden Street, Birmingham, had concealed and been concerned in the distribution of 434 lbs. of saccharin on which duty had not been paid, and thus rendered himself liable to penalties amounting to 3,385*l.*

The case for the Crown was that the duty upon saccharin is 20*s.* per lb., that article being 550 times as sweet as sugar. In May and June, 1901, consignments of saccharin were discovered on board two ships at Southampton, the cases being labelled "Chemical products—foot-powder." The boxes were traced to the Grand Hotel, Birmingham. A person named Fermenich, traveller for Messrs. Chuit & Naef, of Geneva, wrote to defendant from Paris, directing him to go to the Grand Hotel, Birmingham, where he would find twenty-seven parcels, and asking him to take them away and re-address them according to instructions. This the defendant did, and the firm of which he was manager took 60 lbs. of the stuff. The question for the jury was whether this was done by the defendant with a knowledge of the nature of the stuff.

Evidence was called for the prosecution as to the reception of a crate at the Grand Hotel, Birmingham, containing the twenty-seven parcels, and generally in support of the above statement. Mr. William Starkey, confidential Customs officer, also gave evidence.

The Solicitor-General read letters showing that defendant was authorised by Fermenich to deduct from money owing to him 1*s.* per lb. as commission in dealing with the twenty-seven parcels of saccharin obtained from the Grand Hotel, which appeared to be about 416 lbs. altogether.

Mr. T. Coates, the defendant, the manager of the Mineral-waters Aëration Company, told how he gave Fermenich a first sample order for a pound of saccharin at 14*s.* a pound, to be invoiced under the name of Genève oil, and subsequent larger orders were given. Referring to the visit of Mr. Starkey to his office, witness said he gave all the information he could when they said the stuff (delivered after a duty was put on saccharin) was smuggled, and produced the letters and invoices showing the dealings through Fermenich. The saccharin was described as Genève oil in order to avoid the claim of the Saccharin Corporation.

The Lord Chief Justice: To conceal that it was saccharin?—Yes.

Witness was cross-examined by the Solicitor-General rather severely about his assertion that he did not know the article was smuggled, and as to his dealings with Fermenick.

After further evidence, and speeches from Mr. Disturnal for defendant, and the Solicitor-General for the prosecution, the Lord Chief Justice instructed the jury, pointing out that they must not think the items were entered in the invoices as "Genève oil" for the purpose of smuggling them into this country, because that had been done before duty was imposed to evade detection by the Saccharin Corporation.

The jury found the defendant not guilty, and judgment was entered accordingly.

SACCHARIN-SMUGGLING.

AT the Liverpool Police Court on July 27, Amando Pietri (33), an Italian, living in Harriet Terrace, Queen's Road, was charged on remand by Alfred William Starkey, confidential officer of H.M. Customs, with smuggling forty-five packages of saccharin. The saccharin was sent in a trunk (with a false bottom) from the Continent to Dover, and thence to Lime Street Station, at Liverpool, consigned to a Mr. Williamson. It remained at Lime Street for some days, and was ultimately removed to Harriet Terrace, Queen's Road. It was found in prisoner's possession, and when asked to give an account of it he said that he was the baggage-master at the Hippodrome, and that a man named Williamson had requested him to call for it at Lime Street. It was submitted for the defence that the prisoner was met in the railway-station by a man named Williamson, who asked him to take charge of the trunk. He consequently removed it to his premises, not knowing what it contained. After some discussion the Magistrate, however, held that the prisoner had removed the box with a knowledge that it contained imported saccharin, and imposed a fine of 100*l.*, with three months' imprisonment in default.

Petroleum Acts.

AT Lincoln on July 22, four dealers in petrol were summoned under the Petroleum Act of 1871 for having a greater quantity of petrol in stock than licensed for, and in two cases for having petrol and carbide of calcium on unlicensed premises. The offences were admitted in each case, and the excuse pleaded was that the demand under the new conditions could not be met under the old licences, and that the petrol was in hermetically sealed tins. The Magistrates said, in view of the fact that the Act was thirty-two years old, and passed when such a state of things as now existed was not contemplated, they should not impose heavy penalties; but the offences must not be repeated, and proper licences must be taken out. There would be a fine of 1*l.* and costs in each case.

Sale of Food and Drugs Acts.

Milk of Sulphur.

At the Westminster Police Court on July 24, Alexander Fitzgerald, of Marsham Street, Westminster, was summoned for selling milk of sulphur containing 46·4 per cent. of non-volatilisable mineral matter. It was stated for the prosecution that a fair price was paid for a sample of milk of sulphur which on analysis was found to be adulterated with plaster of Paris. Defendant, while pleading guilty, said he was entirely unaware of the adulteration. He had sold 1 lb. in eight years. On learning that it was adulterated he destroyed the remainder. A fine of 5*s.* and 14*s.* 8*d.* costs was imposed.

A Pepper-warranty.

At Leigh Police Court, on Monday, July 27, Thos. Mayoh, trading as Messrs. Mayoh & Co., drysalters, spice-merchants, &c., 45 Chapel Street, Salford, was charged with giving a false warranty to Jno. Bullough, grocer, Atherton, in respect of 28 lbs. extra white pepper, guaranteed genuine. Mr. Roc Rycroft, who defended, relied upon a warranty which the defendant held from Messrs. C. Johnson & Co., pepper-grinders, Liverpool, and also upon the fact that defendant had done everything he reasonably could to satisfy himself that the pepper was pure, and that he was justified in giving a warranty to his customers. Dr. J. Carter Bell, analyst for Salford, had certified the pepper as, practically speaking, pure; and Somerset House could only say that it contained about 3 per cent. of foreign vegetable matter, corresponding to pounded olive-stones. The case was dismissed.

A Camphorated-oil Warranty.

On Monday, July 27, at the Cannock Police Court, G. Turley & Son, drysalters, Edgbaston Road, Birmingham, were summoned for giving a false warranty with respect to camphorated oil sold to Mr. T. E. Fereday, grocer, Bridgtown. The case, it was stated, was brought into Court with the object of testing the warranty given to Mr. Fereday. It was shown that Messrs. Turley had previously paid the costs in a case in which Fereday was summoned for selling camphorated oil which was not of the standard set forth in the British Pharmacopœia. The oil was shown to be 23 per cent. deficient in camphor. After the case Mr. Toy, inspector under the Acts, called at Mr. Fereday's and demanded 6 oz. of the oil, the object being to test the warranty. The defence set up was that the warranty did not apply in this particular case. Mr. Bumsted, who presided over the Court, said the Bench thought the business was carried on in a most slovenly manner. The firm would be fined 10*l.* and costs, which amounted to 1*l.* 9*s.* 4*d.*

Ammoniated Tincture of Quinine.

At the Bournemouth Borough Police Court on July 28, before the ex-Mayor (Dr. George Frost) and other Magistrates, Mr. Frank Rye, pharmacist, 117 Poole Road, Bournemouth, was summoned for having sold, to the prejudice of the purchaser, ammoniated tincture of quinine not of the nature, substance, and quality demanded. Mr. T. E. Rodgers prosecuted, and Mr. Harry Trevanion represented Mr. Rye.

Mr. Rodgers explained the case, and put in the certificate of Mr. R. A. Cripps, the analyst, which showed that the sample contained sulphate of quinine, 2·17 per cent.; ammonia, (NH_3), 0·80 per cent; absolute alcohol, 42·95 per cent.; water, 54·08 per cent. From these results Mr. Cripps was of opinion that the sample was deficient in alcohol to the extent of 5 per cent., and in ammonia 21 per cent. This opinion was based upon the fact that ammoniated tincture of quinine should contain 45·58 per cent. of absolute alcohol and 1·02 per cent. of ammonia. The certificate stated that the sample had not undergone change that would interfere with the analysis, and Mr. Rodgers commented upon this, informing the Bench that it meant that the sample had not deteriorated after purchase.

Frederick P. Brazier, a clerk in the Sanitary Department of the Bournemouth Corporation, proved the purchase on June 17 of a 4-oz. bottle of the tincture, which he ordered and called for later in the afternoon.

John Christie, inspector of foods and drugs, proved the division of the sample. He put each part in a corked bottle, and, cross-examined on this point, said the authorities did not provide him with stoppered bottles, and admitted that such bottles would preserve the strength of the tincture better.

For the defence, Mr. Trevanion contended that the words "not of the nature, substance, and quality" had reference to the purity of the article sold. Although the article might have been weak as regards quality, if it was sold as genuine then there was a defence in that case. Note A to the section under which the proceedings were taken stated that the quality had reference, in the opinion of the Editor of Stone's "Justices' Manual," to the purity of the article, and the sale of an article that deteriorated in strength by keeping did not bring the seller within the section. That was also the opinion of The Chemist and Druggist, the recognised organ of the trade. Dealing with the ingredients which went to make up the compound, it would be noticed that in the report of the analyst quinine, which was the important ingredient, was quite up to the standard of strength prescribed, but the other ingredients did not come up to the quality prescribed by the British Pharmacopœia. The deficiency in the strength was arrived at by reason of the fact that both were highly volatile. The smaller the supply in the bottle the more opportunity there was for gases to form, and they passed off directly the cork or stopper was removed, and the longer they came in contact with the atmosphere so much more of the strength of the article passed off. When the compound in question was supplied to the purchasing-agent it was carefully made up in a stoppered bottle, because a stoppered bottle was recognised in the trade as being the more effective way of retaining the strength of the compound. The reason was obvious, for the gases were liable to permeate through the cork and pass off to the atmosphere. In that particular instance the effect on the purchaser was small. The alcohol was deficient to the extent of 5 per cent., or in a teaspoonful of the ammoniated quinine it represented a deficiency of 1 drop. The ammonia showed a larger deficiency, but if they reduced that again to smaller proportions it would be found to be $\frac{1}{10}$ drop, which was equivalent to $\frac{1}{10}$ gr. of ammonia. That was the whole effect it had on the purchaser, and the extent to which he was prejudiced. It was almost straining the Act to say that such a deficiency was to the prejudice of the purchaser. One almost wondered that a prosecution should have been instituted in that case. The purchase was made in the month of June, one of the warmest months of the year, and he urged that there was a probability of reduction in the strength of the two ingredients through evaporation during the process of uncorking and transference from one bottle to the other by the inspector.

Mr. Rye, who then went into the witness-box, said that he was a pharmaceutical chemist of twenty-one years' standing. He prepared the compound in accordance with the standard which the Pharmacopœia required. He purchased the ingredients from reliable houses, they were the best drugs in the market, and he paid the proper standard prices for them. The alcohol was taken from a consignment that was up to proof. He accounted for the deficiency by evaporation in passing the compound from one bottle to another, and he did not consider that if the bottles in question were corked and sealed at the top they prevented evaporation. Witness was cross-examined by Mr. Rodgers, who stated that of five samples bought on June 17 and sent to the analyst, this one only was below standard.

Mr. G. E. Bridge, Bournemouth, stated that during the twenty-six or twenty-seven years that he had been a chemist he had often had to prepare ammoniated tincture of quinine, and he recognised the British Pharmacopœia as the standard, although it was difficult to guarantee to the purchaser an article which was up to the proper strength, so volatile were some of the ingredients. To form any accurate estimation of the ammonia and alcohol being absolutely up to the standard the ammoniated quinine should, immediately after manufacture, be put into a small stoppered bottle, and filled up to the root of the stopper. Unless that was done, he did not believe that one sample in a hundred would be analysed and found absolutely up to the standard.

In reply to Mr. Rodgers, Mr. Bridge said the requirements laid down in the British Pharmacopœia were, for ordinary retail trade, impracticable, because they had to deal with two of the most volatile of ingredients, and taking into consideration the transference of the compound from bottle to bottle, he did not think that the deficiencies were excessive.

At this juncture, although Mr. J. H. Williams, M.P.S., chemist, Commercial Road, Bournemouth, was called, the Bench stopped the case and retired to consider their decision, Mr. Rodgers having previously pointed out that the words "of the nature, substance, and quality" were to be taken collectively and not separately. Upon returning into court, after an absence of a few minutes, the Chairman said: We have considered this case, and have decided to dismiss it. We suggest to the inspector that he should be careful in sending volatile drugs by post that they are hermetically sealed, if possible.

County Court Case.

Question of Liability.

In the City of London Court, on July 28, before Judge Lumley Smith, K.C., an action was brought by Messrs. Barclay & Sons (Limited), 95 Farringdon Street, E.C., to recover 3*l*. 11*s*. 5*d*. for chemicals supplied to the defendant, Mr. G. E. Meyrick, 7 Pemberton Road, Harringay. Woodcock, salesman to the plaintiffs, said he remembered the defendant buying the goods sued for, which were supplied in the ordinary way of trade. The defendant assured the Court that he was not liable for the goods, and that he did not order them in his personal capacity, but as manager for a company in whose employ he was. His directors had the goods, which consisted of cocaine, which he certainly would not want. The plaintiffs said they only knew the defendant in the matter, and the goods were supplied on his credit. Judge Lumley Smith said he considered as a rule that a man who gave an order was liable for it. The defendant should have made it clear that he was acting for a company. As he had not done so judgment must be given for the plaintiffs, with costs.

Bankruptcy Report.

Re S. & E. Ransome, 49 Leadenhall Street, E C., Colonial and General Merchants.—An application for an order of discharge was made to Mr. Registrar Brougham at the London Bankruptcy Court on July 24 by these debtors, who failed in October, 1901, with ranking liabilities 33,381*l*. Mr. Grey, Official Receiver, reported that the assets were expected to realise 2,811*l*. 14*s*. 10*d*., and a first and final dividend of between 8*d*. and 1*s*. in the pound would be paid to the creditors. The business was founded in 1852. The firm had accommodation bill transactions with Wallis, Sons & Co., Rogers Brothers, Thomas & Short, and others, and they attributed their insolvency and failure to losses by accepting bills of exchange and entering into guarantees on behalf of other firms. As offences the Official Receiver reported (1) insufficiency of assets to pay 10*s*. in the pound to the unsecured creditors; (2) trading with knowledge of insolvency; (3) contracting debts provable in bankruptcy without having reasonable or probable ground of expectation of being able to pay them; and (4) contributing to the bankruptcy by rash and hazardous speculation. His Honour said it was a serious case with regard to the debtors' trading, as they had been insolvent since 1893, and with that knowledge they had contracted their present debts. A vicious course of trading had been carried on in accommodation bills, and the debtors had been prosecuted for offences under the Debtors Act, but were found to be not guilty. The discharges would be suspended for four years from the conclusion of the public examination in March, 1902.

Gazette.

Partnership Dissolved.

Steele, R., M.D., and **Welsford, A. G., M.D.**, under the style of Steele & Welsford, Hemel Hempstead, general medical practitioners.

Deeds of Arrangement.

Johnson, James Edward Johnson, Marsh Gate Lane and 40 Idmiston Road, Stratford, chemical manufacturer. Trustee, Thomas A. Wall, 67 Basinghall Street, E.C, accountant. Dated, July 17; filed, July 21. Secured creditors, 733*l*. 10*s*.; liabilities unsecured, 7,114*l*. 16*s*. 8*d*.; estimated net assets, 60*l*. The following are scheduled as creditors:

	£	s.	d.
Adlam G., & Sons, Bristol	233	0	0
Clark, E., London	950	0	0
Cox, Thomas C., London	15	0	0
Edme (Limited), Mistley	1,375	0	0
Gillespie Brothers & Co., London ...	1,900	0	0
Scottish Life-insurance Company, London	295	0	0
Bankers' claims	3,080	0	0

Manuel, Walter, The Wicker and 12 Hanover Square, Sheffield, chemist. Trustee, Henry J. Liversidge, East Parade, Sheffield, accountant. Dated, July 17; filed, July 22. Liabilities unsecured, 399*l*. 8*s*. 2*d*.; estimated net assets, 162*l*. 1*s*. 8*d*. The following are scheduled as creditors:

	£	s.	d.
Evans Sons Lescher & Webb (Limited), Liverpool	53	0	0
Ridley, Mary, Mytton Whalley	260	0	0

Personalities.

Mr. Alfred Mond, son of Dr. Ludwig Mond, has been adopted as Liberal candidate for Chester.

Professor J. A. Ewing, F.R.S., LL.D., has been appointed a member of the Explosives Committee, in the place of the late Sir W. C. Roberts-Austen.

Messrs. F. Newbery & Sons inform us that Mr. Francis Newbery, the grandfather of the present principals, was High Sheriff of the county of Sussex, not Sheriff of London as was said last week.

Dr. J. I. Langley, who, when a chemist and druggist, was a dispenser at Guy's Hospital, has sold his practice in Manchester, having obtained an appointment as a medical officer in the P. & O. Company.

Mr. and Mrs. Leonard Radcliffe, master and matron of the Saddleworth Workhouse, have been appointed to similar positions under the Oxford Board of Guardians. Mr. Radcliffe was formerly a chemist.

An English wholesale druggist and patent-medicine business will be opened at the Old Quai, Nice, on September 1, by Messrs. A. & T. Reilly. The two brothers have had considerable experience as assistants in English pharmacies on the Riviera. Messrs. Reilly will carry a complete stock of the requirements of Riviera chemists with an English *clientèle*. Mr. T. J. Reilly is at present in London, and may be addressed at 5 Tavistock Place, W., or c/o The Chemist and Druggist, 42 Cannon Street, E.C.

The Abortion Charge.—At Leeds Assizes on July 29, James Augustine Hartley Toulson, chemist, Meanwood Road, Leeds, was indicted for having incited a girl named Sarah Bennett to procure abortion. The particulars of the charge were indicated in the Chemist and Druggist of July 25 (page 116). Prisoner, who is seventy years of age, entered the dock with a copy of the B.P. under his arm, and, after Dr. Brown had given evidence, the prisoner asked him to name any medicine in the B.P. which would have the result alleged by the prosecution. Dr. Brown mentioned ergot and colocynth, and said there were several others he could not remember. The prisoner declared that the first 8-oz. bottle sold to the girl contained only 8 gr. of extract of gentian, with a few drops of burnt sugar, whilst the second bottle contained 12 gr. of gentian-extract and the same colouring. In reply to the Judge, Dr. Brown said that gentian would not procure abortion, but that the pure liquid of extract of ergot was about the same colour as the stuff in the bottle produced. Eventually the prisoner was found guilty, and sentence was postponed.

Westminster Wisdom.

(From our Parliamentary Representative.)

The Pharmacy Bill.

The opposition of the Society of Apothecaries to the Pharmacy Bill now before Parliament finds adequate expression in a petition which has been presented to Parliament by Mr. Alban Gibbs. The "Master, Wardens, and Society of the Art and Mystery of Apothecaries of the City of London" make "humble petition" for the alteration of the Bill, and plead further that they may be heard by counsel before the Bill is permitted to pass into law. The petition sets forth:

1. That a Bill is now pending before your honourable House, intituled "A Bill to alter and amend the Pharmacy Acts, 1852 and 1868."

2. That your petitioners were incorporated by letters patent granted under the Great Seal of Great Britain by his Majesty King James I, in the fifteenth year of his reign.

3. That under the said letters patent, and the Apothecaries Act, 1815, your petitioners were entitled to sell, dispense, and compound drugs and prescriptions, and are required to grant certificates entitling the holders thereof to practise as apothecaries and assistants to apothecaries respectively, to applicants who, after due examination, shall have given proof of their fitness and qualification. And part of the duty of an apothecary is to sell, dispense, and compound drugs.

4. That under the Medical Acts the certificate or diploma of Licentiate of the Society of Apothecaries, London, granted by your petitioners is a legal qualification entitling the holder thereof to practise medicine, surgery, and midwifery, and to have his name entered in the medical registry.

5. That your petitioners' licentiates are several thousand in number, most of whom practise as general medical practitioners, and a great many of them, assisted by duly qualified assistants, keep or conduct and manage dispensaries where drugs and prescriptions are sold, dispensed, and compounded. That your petitioners in exercise of their right and privilege have always carried on at their hall, in the City of London, the business of selling, dispensing, and compounding drugs and prescriptions, such business being conducted by duly qualified persons, and the customers being for the most part medical practitioners and hospitals.

6. That your petitioners are advised and believe that the Bill, and more particularly clauses 2 and 11 thereof, if enacted in their present form, would prejudicially affect the rights, privileges, and status of your petitioners, and would unduly and unnecessarily interfere with and prejudice their licentiates and certificated assistants in carrying on their professional business, and for which prejudicial interference your petitioners submit no justification can be shown.

7. That the Pharmacy Act, 1852, did not affect your petitioners, their licentiates, or their certified assistants, and the Pharmacy Act, 1868, expressly provides that its main provisions shall not extend to or interfere with the business of such licentiates, and that none of the evils sought to be remedied by the said Bill arises from the business of selling, dispensing, and compounding drugs and prescriptions heretofore carried on by your petitioners and their licentiates and assistants, and that it is for the public benefit that such business shall not be interfered with or subjected to the restrictions and conditions sought to be imposed by the said Bill.

Your petitioners therefore pray your honourable House that the said Bill may not be passed, unless it be so amended that your petitioners, their licentiates, and certificated assistants be exempted from its operation. And that, if the said Bill be referred to any Committee of your honourable House, your petitioners may be heard by their counsel, agents, and witnesses against the Bill, and in support of the allegations in this petition; and that they may have such other relief as to your honourable House may seem meet.

And your petitioners will ever pray.

The seal of the Master, Wardens, and Society of the Art and Mystery of Apothecaries of the City of London, affixed in the presence of

W. Parson (Master).
C. Cooper, Albert B. Day (Wardens).

Sheep-scab Bill.

This Bill was considered by the Standing Committee of the House of Commons on Trade on July 28, Sir J. Fergusson presiding. On Clause 2, which gives power to an inspector to enter premises to examine sheep, Sir C. Renshaw suggested that it would only be fair to give notice beforehand, and especially that the inspector should not have the right to order the sheep to be brought in during the lambing season. Mr. Ailwyn Fellowes, on behalf of the Board of Agriculture, would not accept the amendments, but offered to amend the clause so that the owner and person in charge should be asked only to comply with all reasonable requirements of the inspector. This was agreed to.

Mr. Weir and Lymph.

Mr. Weir has not followed Mr. Chamberlain's example, and announced his intention of starting a campaign against the use of humanised lymph; but he still continues his crusade in the House of Commons. He asked the Lord Advocate on Monday whether, "seeing that the use of humanised lymph is prohibited in England and most other European countries, will he consider the expediency of taking such steps as may be necessary to prevent parochial vaccinators in Scotland from adopting a system of arm-to-arm vaccination, which has been condemned by a Royal Commission, and also by leading medical authorities in Europe." The question showed that Mr. Weir has got rather astray with his facts, and the Lord Advocate hastened to call his attention to the fact. The hon. member, he said, was misinformed in stating that humanised lymph was prohibited in England.

Liability to Medicine-stamp Duty.

THIS is the title of a paper by Mr. John Humphrey to be read before the Federation of Pharmaceutical Associations at Bristol this week after we go to press, and for a copy of which we are indebted to the author. After briefly relating the history of the statutes and describing the grounds of liability, Mr. Humphrey proceeds to deal with ailment-names, the discontinuance of which as "not liable" has been forced upon the Board by the decision in Ransom *v.* Sanguinetti. He advanced reasons for considering that the exemption in this regard which qualified chemists enjoy under two conditions—(1) printing the formula in the label, or (2) stating in the label in what well-known book of reference the formula is published—will be taken advantage of under the second condition. He therefore suggested that a special formulary should be published to contain formulæ for the more popular remedies in general demand:

Antibilious pills
Blood-purifier
Chilblain-lotion
Cholera-drops
Corn-paint
Corn-plasters
Corn-solvent
Cough-lozenges
Cough-mixture
Cough-syrup
Diarrhœa-mixture
Eye-ointment
Fever-mixture
Gout and rheumatic pills
Head-and-stomach pills
Headache-powders
Influenza-mixture
Liver-pills
Liver-tonic
Lung-tonic
Neuralgia-pills
Pile-ointment
Rheumatic embrocation
Ringworm-ointment
Stomachic mixture
Tic-pills
Tic-mixture
Toothache-essence
Worm-lozenges
Worm-powders

Mr. Humphrey hinted that no book is at present available covering the ground, and said:

> The Board of Inland Revenue will not recognise any journal or other periodical publication as "a well-known book of reference," nor will it extend that definition so as to cover a book of formulæ published by a private individual [see page 205], a local pharmaceutical association, or a trade-protection society. But it is prepared to recognise a formulary published by an official body, such as the Pharmaceutical Society of Great Britain. A statement to the effect that an article is prepared according to a formula which appears in a work published by that Society will be regarded by the Board as evidence that the article is an approved remedy, and therefore within the exemption relied on by the defendant in the recent case of Farmer *v.* Glyn-Jones, unless the original vendor made the article dutiable.

The author then commented upon the decision in Farmer *v.* Glyn-Jones and various points involved by it, which have been explained by the Board of Inland Revenue and others since the decision was given. He especially pointed out that the Medicine-stamp Acts "make a clear distinction between persons qualified by education and persons simply authorised by licence to sell medicines, and it is of the highest importance to registered chemists that the Board of Inland Revenue has now decided to recognise that distinction, and regulate its practice accordingly."

Trade Report.

NOTICE TO BUYERS.—The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers stock the goods. Qualities of drugs and oils vary greatly, and higher prices are commanded by selected qualities even in bulk quantities. It would be unreasonable for retail buyera to expect to get small quantities at anything like the prices here quoted.

42 Cannon Street, London, E.C.: July 30.

BUSINESS in drugs and chemicals has ruled quiet since our last report, and fluctuations in values have been few. The most important change is a decline of about 2*s.* per lb. in menthol, which is expected to be the forerunner of still lower prices. Quinine, after a quiet week, closes lower. Opium is in fair demand, but no further advance has taken place. Rio ipecacuanha has been in reqnest, buyers having taken the opportunity to replenish their stocks at last week's decline. Cream of tartar is rather easier, while citric and tartaric acids are without business of importance. Cod-liver oil is quoted easier from Norway, but there is no demand here. The following are the principal changes of the week:—

Higher	Firmer	Easier	Lower
Coriander-seed	Golden seal	Copper sulphate	Ammonia sulphate
Lycopodium	Oil, geranium	Cream of tartar	Cinnamon-twigs
Oil, cajuput		Ginger, Jamaica	Menthol
Shellac		Oil, cod-liver	Quinine (sec.-hands)
Soy			

ARROWROOT.—In auction 450 packages St. Vincent were bought in, including good manufacturing at 2¼*d.* Tins sold at 3¼*d.* for good, and of 29 half barrels Bermuda six sold at 1*s.* 5*d.* per lb.

BENZOIN.—Fine Sumatra is still scarce and wanted. The demand has been principally for gum, ranging from 5*l.* to 6*l.* 10*s.* per cwt.

CANTHARIDES.—The new Russian crop may be expected in about a week's time at from about 2*s.* 4*d.* to 2*s.* 5*d.* per lb. c.i.f.

CASCARA SAGRADA.—Advices from the United States report that higher prices will prevail later, as the cutting season is practically finished, and no offers are forthcoming from the West; 55*s.* to 57*s.* 6*d.* per cwt. is quoted for last year's bark on the spot.

CHAMOMILES are arriving in fairly considerable quantities from the Continent, and there is every prospect of low, prices prevailing this season. The bulk of the arrivals are mostly old flowers, holders asking 35*s.* to 45*s.* per cwt., according to quality. It is not expected that the new crop, which is now about due, will show much choice quality, owing to adverse weather.

COCA-LEAVES.—The exports from Java from January 1 to May 31 amounted to—

	1903	1902	1901	1900	1899
Bales ...	175	1,205	160	250	195

COPPER SULPHATE is easier at from 18*l.* 12*s.* 6*d.* to 20*l.* according to quality.

CREAM OF TARTAR.—In view of the recent prosecutions, it is as well to emphasise the fact that "guaranteed lead free" cream of tartar or B.P. quality is offered at 92*s.* per cwt., and that 98-per-cent. to 99-per-cent. powder, not guaranteed lead free, is quoted 88*s.* to 89*s.*

CUBEBS.—The exports from Java from Jannary 1 to May 31 amounted to—

	1903	1902	1901	1900	1899
Picnls ...	275	980	1,055	1,386	1,231

ERGOT.—Some of the weevilly parcels offered in auction last week have since been cleared at a low price, which has not transpired. Sound, which is rather scarce, is quoted 1*s.* 1*d.* to 1*s.* 1½*d.* per lb.

GAMBIER.—Cubes are quiet, with small sales at 39*s.*, spot. For arrival sellers ask 35*s.* 6*d.*

GAMBOGE.—The London stock is now concentrated in second hands, who are asking from 17*l.* 10*s.* to 18*l.* per cwt. and last week 2 cases of good pipe sold at the higher figure. Seven cases have arrived from Havre.

GOLDEN SEAL.—Private advices from New York state that the new crop of spring-dug root is coming in slowly, and that no fall-dug root can be expected for some weeks. There was little left over from last season, and the qnotation has advanced to 55c. per lb. On the spot 2*s.* 4¾*d.* per lb., net, is quoted.

IPECACUANHA.—Since the auction some 25 bales of natural Rio have been sold at the sale rates—viz., from 5*s.* to 5*s.* 1*d.* per lb. There are several orders for Cartagena in the market at limits a few pence below present prices.

JALAP.—The exports of jalap from Vera Cruz during the fiscal year 1901–2 amounted to 123 tons (3,446*l.*), against 109 tons (3,844*l.*) in 1900–1, and 79 tons (3,713*l.*) in 1899–1900.

LYCOPODIUM.—The new crop is expected shortly, after which there will probably be some modification in present prices. Meanwhile the high figure of 2*s.* 3*d.* per lb. spot is quoted.

MENTHOL is about 2*s.* per lb. lower, business having been done in Kobayashi brand at 22*s.* per lb., spot, and for August-September shipment 17*s* , c.i.f., has been paid for a few cases. The exports of menthol from Yokohama during 1902 amounted to 46,711 lbs. (71,654*l.*), against 40,953 lbs. (79,794*l.*) in 1901.

OIL, ANISEED, STAR.—The spot prices are from 4*s.* to 4*s.* 1*d.* per lb., and a bid of a penny less has been refused in one quarter.

OIL, CAJUPUT.—For finest quality as much as 4*s.* 9*d.* per bottle is asked in one direction, while an ordinary brand is obtainable at 2*s.* 3*d.*

OIL, CASTOR.—Belgian for July-December delivery is quoted 19*l.* 10*s.* for firsts, and 17*l.* 5*s.* for seconds. The market is steady, but quiet, Hull make being quoted for prompt July-December at 19*l.* 10*s.* per ton for firsts, and seconds (September-December delivery) 17*l.* 10*s.*; January-June, firsts, 19*l.* 15*s.*, and seconds 17*l.* 15*s.*, ex wharf, London.

OIL, CITRONELLA, is steady at 9½*d.* in drums, and 10½*d* per lb. in tins.

OIL, COD-LIVER.—Under date of July 25, our Bergen correspondent writes that the cod-liver oil market is very quiet and unaltered, best non-congealing oil being quoted at from 450*s.* to 480*s.* per barrel, f.o.b. Bergen. The exports from Bergen to date amount to 463 barrels, against 5,313 barrels at the same time last year. The London market remains quiet, it being possible to buy a good brand at 480*s.* per barrel, up to 500*s.* being quoted. For new Newfoundland cod-liver oil, samples of which have arrived, 16*s.* per gal., f.o.b., is asked.

The *Canadian Gazette* reports that a large cod-liver oil plant has been put up at Island Cove, Newfoundland, and an extensive business will be carried on there in this liue.

OIL, LAVENDER.—Foreign will, in all probability, be dearer if the present bad weather continues.

OIL, LEMONGRASS.—Keeps quiet at 6½*d.* per oz., on the spot.

OIL, ORANGE, is firm, and in good demand, agents asking from 6*s.* 6*d.* to 7*s.* per lb., c.i.f.

OILS, FIXED.—*Linseed* is easier at 19*s.* 10½*d.* to 20*s.* in barrels. *Rape* steady at 22*s.* 3*d.*, spot, and refined 23*s.* 9*d.* Cochin *cocoanut* 32*s.*, spot, and Ceylon 25*s.*, spot. Crude *cotton* is firmer at 21*s.* 9*d.*, spot, and refined 23*s.* 3*d.* to 24*s.* 3*d.* per cwt.

Oil, Geranium.—Pure *Reunion* is rather firmer, very little, it is said, having been distilled in the island; from 14*s.* to 15*s.* per lb. is asked, according to brand.

Opium.—The London market is firm, and there has been a fair demand in Persian opium in consequence of an improvement in the Chinese exchange. There are no sellers of Turkey in Smyrna or Constantinople under 10*s.* Salonica is quoted 11*s.* 6*d.* and Tokat up to 12*s.* 6*d.* Smyrna druggists' has been sold on the spot at from 9*s.* 6*d.* to 9*s.* 9*d.* spot.

Smyrna, July 17.—A further advance has been made on this market, owing to large purchases on behalf of interior speculators and American consumers. The sales for the week amount to 200 cases, and include the following: 184 cases old current and choice Karahissar t.q. at from 9*s.* 3*d.* to 10*s.* 1*d.*; 6 cases old Yerli at 10*s.* 4*d.*, and 10 cases new current t.q. at from 9*s.* to 9*s.* 4*d.* per lb., c.i.f. Of the above quantity 101 cases were for the United States, 61 for speculation, and the remainder for European export. The market closed firm, with an upward tendency. Buyers have not fulfilled their engagements, and many of the sellers have withdrawn from the market. The arrivals of new opium in Smyrna to date amount to 254 cases, against 1,280 cases at the same time last year.

Constantinople, July 24.—The market closes very firm, with speculative buyers at 9*s.* 6*d.* to 9*s.* 7*d.*, but sellers holding out for 2*d.* to 3*d.* more. The crop is evidently turning out less than was expected, and, as far as can be judged at present, will yield barely 3,000 cases, made up as follows: "Druggists'," 1,500; Salonicas, 850; "soft," 550. In the circumstances a decline appears out of the question. At the same time, it must be borne in mind that the world's stocks are heavy, and, as consumers have recently supplied their wants for some time ahead, a spell of inactivity lasting one or two months may set in, which would severely try holders' patience. Good rains during September will likewise induce holders to part with their goods. The week's sales amount to 4 cases "soft," at 9*s.* 8*d.*, and 11 cases "druggists'" at 9*s.* 4*d.* to 9*s.* 6*d.* per lb., f.o.b.

The exports from the ports of the consular district of Bushire during 1902 amount to 4,115 cwt., compared with 10,729 cwt. in 1901, or a decrease of 6,614 cwt. The average for the five preceding years was 5,855 cwt.

Quinine.—The market has been quiet throughout, small sales of the usual German brands of sulphate in bulk being effected from secondhands at 11¼*d.* to 11½*d.* per oz. spot, and December at the same figures. To-day, however, a "bear" sale of 5,000 oz. has been made at 10¾*d.* per oz., spot, and 11⅛*d.* for December, being lower.

The result of the tender held on Wednesday at Batavia is as follows: Of 5,978 kilos. Ed. II. offered, 96 kilos. were sold at an average of 18fl. per kilo. (equal to 10⅕*d.* per oz. net in Java, or a unit of 6¾c. Amsterdam), against 15fl. per kilo. at the previous tender.

The exports of quinine from Java from January 1 to May 31 amounted to—

	1903	1902	1901	1900	1899
Cases ...	519	414	821	657	755

Sarsaparilla.—Mexican is very scarce on the New York market, there being few, if any, offers from Mexico. 8½c. is quoted, and here bids of 4½*d.*, c.i.f., would lead to business. About 12 bales red and yellow native Jamaica have arrived this week, and 39 packages grey Jamaica.

Seeds.—Russian *Anise* quiet, but steady at 15*s.* 6*d.* per cwt. Dutch *Caraways* are quoted 21*s.* to 21*s.* 6*d.* per cwt. *Canary* slow at 50*s.* per quarter for Turkish on the spot; the quotation is firm owing to small stocks and the failure of the Morocco crop, but the new crop of Turkish, being plentiful, can be bought at 37*s.* per quarter, c.i.f. terms, but this description will not arrive here until the end of September. *Coriander* dearer, with sales of good Morocco at 11*s.* per cwt. *Cumin* firm, with business doing for Morocco at 19*s.* to 21*s.* per cwt. according to quality, and for Malta at 24*s.* *Fenugreek* neglected, the quotation being 7*s.* 6*d.* per cwt. *Linseed* is selling cheaply at 39*s.* to 40*s.* per quarter for good bold.

Shellac.—There was a good spot demand at the close of last week, fair TN Orange selling at 139*s.* to 140*s.* cash terms, and this week a fair business has been done at from 140*s.* to 143*s.*, for fair to superior, cash terms. For arrival, TN for July-September shipment has been done at 133*s.* 6*d.* to 135*s.*, and October-December shipment at 133*s.* to 134*s.*, c.i f. "Futures" opened strong and dearer on Monday, and the market has remained very firm throughout, sellers, however, being reserved. August delivery has sold at from 142*s.* to 143*s.*, and other months in proportion, sales comprising several thousand cases. In auction 36 cases Button, and 50 cases blocky Garnet were offered, and bought in.

Soy is dearer at from 1*s.* 5½*d.* to 1*s.* 9*d.* per gal. on the spot.

Spices.—At auction 220 barrels of Jamaica ginger offered, of which a few sold at from 37*s.* to 39*s.* for ordinary dull, being easier. Cochin was also in small supply, and very quiet. Unsorted cut in cases was bought in at 55*s.*, and washed rough in bags at 34*s.* to 35*s.* *Pepper.*—Singapore black was not offered, Alleppy was bought in at 6¼*d.*, fine Tellicherry at 6½*d.*, and Ceylon at 6½*d.* per lb. All the offerings of *White Pepper* were also bought in. Privately the market for Singapore remains quiet, with small sales on the spot at 6¼*d.*, and fair Tellicherry also at 6¼*d.* *Cloves* in auction were quiet, four cases Penang, of 22 offered, selling at 8½*d.* for fair. Good were bought in at 11*d.* The market privately for Zanzibar has been inactive, fair being quoted 4¼*d.* spot, and good has been sold at $4\frac{5}{16}$*d.* *Cinnamon* sold in auction "without reserve," 137 bales fair China twigs realising 18*s.*, being cheaper. *Nutmegs* slow of sale. *Mace* firm, and with a fair demand; 41 packages West India sold at 2*s.* 1*d.* to 2*s.* 3*d.* for good, fair 1*s.* 10*d.* to 2*s.*, ordinary 1*s.* 8*d.* to 1*s.* 9*d.*, and pickings 1*s.* 6*d.* to 1*s.* 7*d.* per lb.; four cases Penang sold at 2*s.* 3*d.* for fair, and 2*s.* 9*d.* to 2*s.* 10*d.* for good bold. *Chillies* met with a good demand at full prices for the higher grades of Nyassaland. Good bright red sold at 50*s.*, bright red rather yellowish 44*s.* to 46*s.* 6*d.*, dark red 40*s.* to 44*s.*, weathered 36*s.* 6*d.* Japanese were bought in. *Capsicums.*—Good picked Bombay cherries sold at 20*s.* per cwt.

Sugar of Milk is in light supply, and the market is firm, with a good inquiry.

Turmeric.—Fair bright Calicut finger has been sold at 10*s.* 6*d.*, and ordinary Madras finger at 10*s.* Good split Cochin bulbs have also changed hands at 9*s.* 6*d.* For arrival Bengal is quoted 8*s.* 6*d.*, c.i.f., London.

Vanilla.—According to the figures furnished by the British Consul at Vera Cruz (Mexico), the exports from that port during the fiscal year 1901-2 amounted to 25 tons (50,242*l.*), against 11 tons (34,714*l.*) in 1900-1, and 20 tons (73,886*l.*) in 1899-1900.

Cablegrams.

Hamburg, July 30:—Citric acid is dull of sale; Lycopodium is scarce on the spot at 495m. per 100 kilos.; and Senega is quoted 625m. per 100 kilos.

New York, July 30:—Quiet conditions prevail here. Opium is firm at $3.50 per lb. in single cases. Quinine is higher at 24c. per oz. in bulk. Cod-liver oil is easier at $120 per barrel. Senega is dull of sale at 60c. per lb., and peppermint oil is easy at $2 50 per lb. in bulk. Ordinary pure yellow beeswax is lower at 30c. per lb., and Rio ipecacuanha is quiet at $1.30 per lb.

Arrivals.

The following drugs, chemicals, &c., have arrived at the principal ports of the United Kingdom from July 22 to July 29 inclusive: Acetone (@ Fiume), 31; acid, acetic, 246 pkgs., (@ Rotterdam) 114, (@ Terneuzen) 31; acid, carbolic (@ Cologne) 25, (@ Amsterdam) 15; acid, citric (@ Bordeaux), 12; acid, oxalic (@ Rotterdam), 17; acid, sulphuric (@ Amsterdam), 12; acid, tannic (@ Hamburg), 15; acid, tartaric (@ Bari) 114, (@ Trieste) 64, (@ Rotterdam) 5; aloes (@ Hamburg) 13 cs. (@ Mossel Bay) 18 cs.; alum (@ Rotterdam), 15; alumina sulphate (@ Hamburg), 50; argol (@ Bordeaux), 108; arsenic (@ Barcelona) 175, (@ Oporto) 46, (@ Melbourne) 50; balsam copaiba (@ Maranham), 8; bleaching-powder (@ Hamburg), 404; camphor (@ Hamburg), 53 tubs 57 pkgs.; caraway-seed (@ Harlingen), 50; cardamoms, 261; castor oil (@ Calcutta) 1,185 cs., (@ Venice) 20 cs.; chamomiles, 120; chillies (@ Hamburg), 44; chloral hydrate (@ Hamburg), 1 cs.; cinchona (@ Calicut) 133, (@ Amsterdam) 186, (@ Valparaiso) 35; cochineal (@ Las Palmas), 68; cod-liver oil (@ Bergen), 70; cream of tartar (@ Bordeaux), 15; cumin-seed (@ Malta), 40; drugs (@ Trieste) 233, (@ Fiume) 11, (@ St. Nazaire) 26, (@ Hamburg) 9; ergot (@ Hamburg), 2; essential oils (@ Messina), 27; gentian (@ Bordeaux) 19, (@ Amsterdam) 16; ginger (@ Calicut) 227, (@ Jamaica) 37; glycerin (@ Genoa), 20; gum, unenumerated (@ Aden), 31; honey (@ Jamaica) 161, (@ Dieppe) 158, (@ Chili) 360 brls.; lemon-juice (@ Messina), 30 pps.; lime-juice (@ Jamaica), 34 pns.; liquorice-juice (@ Bari) 23, (@ Palermo) 33; liquorice-root (@ Smyrna), 100; nux vomica (@ Cochin) 480, (@ Calicut) 790;

Heavy Chemicals.

There is nothing new or of special importance to report regarding the condition of the heavy-chemical market, either in connection with demand or values. New business is not of much moment, but there is a fair demand against old orders for both home and export account.

Alkali Produce.—Ruling quotations of main products are as recently mentioned. Bleaching-powder and caustic-soda are still quiet. Saltcake is somewhat firmer.

Sulphate of Ammonia has again declined appreciably and tendency continues downwards. Beckton, 12l. 12s 6d.; Beckton terms, 12l. 5s. to 12l. 7s. 6d.; London, 12l. 8s. 9d.; Leith, 12l. 7s. 6d. to 12l. 8s. 9d.; Hull, 12l. 5s.

Alumina Products.—Ruling conditions in this branch are also as lately reported. Demand is fairly good and regular and all-round prices are steadily maintained. Crystal-alum lump, 5l. to 5l. 5s. per ton.; lump in tierces, 5l. 5s. to 5l. 10s. per ton; ground in bags, 5l. 10s. to 5l. 15s. per ton, with usual extras for other packages. Sulphate of alumina, purest qualities practically free of iron, 4l. 5s. to 4l. 15s. per ton, in ordinary casks, with customary allowances for bags and loose slabs. Aluminoferric, 55s. to 65s. per ton, according to condition and package. Aluminous-cake, 52s. 6d. to 60s. per ton. Hydrate of alumina, purest quality and highest strength Al_2O_3, steady at 12l. to 12l. 10s. per ton in large casks. Hydrate of alumina, special pulp, 12s. 6d. to 15s. per cent.; special pulp dried in lumps, 37s. 6d. to 38s. 6d. per cwt.; and ground, 38s. to 39s. per cwt. Aluminate of soda, high strength Al_2O_3, 35s. to 37s. 6d. per cwt., in accordance with package, quantity, &c. Carbonate of alumina, 35s. to 37s. 6d. per cwt. Chloride of aluminium solution, 13s. to 14s. 6d. per cwt., in barrels.

German Drug-market.

Hamburg, July 28.

Business is still very quiet, and there is little doing on our drug-market at present, few changes being recorded since last week.

Aloes, Cape, is firm at 105m. per 100 kilos.

Balsam Peru is quiet at 9m. per kilo.

Camphor, Refined, is firm. Makers ask 435m. per 100 kilos., and second-hand perhaps 425m. per 100 kilos.

Citric Acid.—Some sales have been made at 220m. per 100 kilos.

Cascara Sagrada.—Spot is held at 100m. per 100 kilos., and forward delivery 85m. per 100 kilos.

Condurango is quoted 72½m. per 100 kilos.

Coca-leaves are firm. Green Bolivian are quoted 260m. per 100 kilos.

Guinea-grains are quiet at 85m. per 100 kilos.

Ergot is firm, 235m. to 240m. per 100 kilos. being asked.

Kola.—Firm at from 80m. to 90m. per 100 kilos.

Lycopodium is very scarce; 480m. per 100 kilos. has been paid, and some holders ask 500m. per 100 kilos. in cases for spot delivery.

Quinine is firm at 32½m. to 33m. per kilo.

Senega is lower; spot is quoted 725m. and forward 625m. per 100 kilos.

Santonin is quoted 51m. to 52m. per kilo.

Star-anise is quiet at 110m. per 100 kilos.

Wax, Carnauba, continues very firm at from 145m. to 195m. per 100 kilos., according to quality.

Wax, Japanese, is also firm at 125m. to 126m. per 100 kilos. on the spot.

Oils, Fixed.—Castor is quiet and slow of sale; first-pressing, in barrels, is quoted 40m., spot, and 38½m., c.i.f. Hamburg, for forward delivery. Cod-liver shows very little business; non-congealing oil is quoted 450m. to 475m. per barrel. Linseed is slightly fluctuating, cotton without business, and rape dull.

Oils, Essential.—Star-anise is quiet at 9½m. per lb.; and HGH peppermint is quoted at 12½m. per lb., and Japanese de-mentholised, 17½m. per kilo.

Liverpool Drug-market.

Liverpool, July 29.

Castor Oil.—This article still remains in the same position, 2¼d. per lb., ex-store, being the price asked on the spot. First-pressure French and English is also quoted at 2¼d.

Irish Moss.—A parcel of new, common, has changed hands on the spot at 10s. 6d. per cwt.

Cochineal.—Nine bags of silver grain are offering on the spot, for which 1s. 3d. per lb is wanted.

Ginger (African).—A parcel has been sold at 26s. 6d. per cwt., which is slightly easier.

Calabar-beans.—At auction 5 bags realised 6¼d. per lb. The balance is held firmly at 6d.

Quillaia-bark.—For 10 tons at auction there were no bids.

Carnauba-wax.—There has been an arrival of a further parcel of grey, and 67s. 6d. to 67s. 9d. per cwt. was bid at auction, but the holders want 70s. Yellow is quoted at from 87s. to 90s. per cwt.

Canary-seed.—There have been sales in quantity at 41s. to 42s. 6d. per qr.

Gum Acacia.—There is very little inquiry for this at the moment.

Beeswax.—A parcel offered at auction and realised from 7l. 10s. up to 8l. 5s. per cwt. for best primrose.

Cream of Tartar is very firm, at 85s. to 86s. per cwt., f.o.b.

Spermaceti.—For a parcel of 26 cases on the quay 1s. per lb. is asked.

American Drug-market.

New York, July 21.

Business is seasonably dull with interest confined to opium quinine, and one or two American staples.

Beeswax is in liberal supply, and quotations are easy at 31c. to 33c. per lb. for ordinary pure yellow wax.

Gamboge is firmer in sympathy with foreign markets. Pipe has been advanced to 85c. per lb.

Golden Seal (Hydrastis).—Supplies are light and the market firm, with 53c. to 54c. per lb. the general quotation.

Ipecacuanha is easier in sympathy with London. Rio is offered at $1.30, and Cartagena at $1.10 per lb.

Citric Acid is seasonably active, and domestic makers quote on a basis of 35c. in bulk.

Ergot.—Both Spanish and Russian are offered at 27½c. per lb.

Japan Wax is in good supply, but demand is weak and quotations have fallen off, and are easy at 14c. to 14½c. per lb.

Menthol continues unsettled, and $7 per lb. is a nominal quotation.

Peppermint Oil.—It is estimated that this year's crop will exceed that of last year by at least 10,000 lbs. Spot-quotations are unchanged at $2 60, but less than this will buy.

Quinine is very firm. All cheap lots of both Java and German have been cleared up, and nothing is to be had from second-hands below 20½c. for Java and 22½c. for German. The market is tending upward, in anticipation of the results of the next bark-sale.

The Sulphate-of-Ammonia Committee.

The annual general meeting of the above Committee was held on July 21, at the offices of the Gas Light and Coke Company, Fenchurch Avenue, E.C., the Chairman (Mr. W. G. Blagden) presiding. Amongst those present were Mr. Alfred Colson (Leicester Gas Department), Mr. F. J. R. Carulla (Sharon Chemical Company, Derby), Mr. A. Fraser (Pumpherston Oil Company), Mr. John Fyfe (Young's Paraffin Oil Company, Glasgow), Mr. Edward A. Harman (Gasworks, Huddersfield), Mr. Wm. Love (Broxburn Oil Company, Glasgow), Mr. Thomas Milne (Gas Light and Coke Company, London), Mr. E. O Paterson (Cheltenham Gas Company), Colonel S. A. Sadler, M.P. (Middlesborough), Mr. Hanbury Thomas (Sheffield Gas Company), and Mr. A. Stanley (Simon-Carvès Coke oven Construction Company, Manchester). The minutes of the meeting held last year at Cork having been passed, the report of the Executive Committee was considered, one of the main points being the question of representation at exhibitions. Mr. Carulla said regarding this matter that he hoped the Committee would see their way to make a good exhibit at the St. Louis Exhibition next year. It was well known that Great Britain made a poor show at the last Paris Exhibition, and it was by no means desirable to repeat that error in 1904, especially in the proximity of Canada and the certainty of a large influx of visitors from our other Colonies. It seemed to him, however, that although individually they could do very little, yet as a united body they might make a creditable display. Mr. Blagden explained the difficulties in the way of making exhibits of the nature required, outside of the United Kingdom. It would be quite impossible to send over to the United States specimens of roots, &c., grown with sulphate of ammonia and retain their freshness during the time of the exhibition. Mr. Hartman suggested that models might be used for the purpose. Colonel Sadler pointed out that when the Committee was formed it was understood to be solely for the spread of information connected with the industry in Great Britain and Ireland. He did not see how they could go outside of that. Mr. Carulla admitted the force of the argument and said that although he would not move any resolution, he still hoped the matter would be taken up individually from patriotic motives, and that in the long-run business-benefit might result from such efforts. On the motion of Mr. Carulla, who referred to the great services that its members had rendered to the industry, the Executive Committee was re-elected. Mr. Blagden said that, as they were all aware, his connection having ceased with the Gas Light and Coke Company, he no longer regarded himself as a sulphate-of-ammonia maker, and it had been his intention to resign the chairmanship, but he had been so pressed by his colleagues to retain office that he had done so and was willing to continue for another year. This announcement was received with expressions of satisfaction, and enabled Mr. Fyfe to move a resolution of thanks to Mr. Blagden for his past services in less regretful terms than he had anticipated having to do. Colonel Sadler seconded, and Mr. Blagden replied.